

Exhibit C

REDACTED - FOR PUBLIC INSPECTION

March 30, 2018

Via Email

RHC Review
Rural Health Care Program
Universal Service Administrative Company
2000 L Street, NW, Suite 200
Washington, DC 20036

Re: GCI Communication Corp. Response to RHC Telecommunications Program –
Information Request
Explanatory Letter

Dear RHC Review,

GCI Communication Corp. (“GCI”) received information requests from the Rural Health Care (“RHC”) Telecommunications Program regarding certain 2017 funding requests of the Health Care Providers (“HCP”) for which GCI is a service provider. GCI provided responses in November and December 2017 to information requests related to 101 Funding Request Numbers (“FRNs”). With regard to those 101 FRNs, RHC Review has informed the HCPs and GCI that the rural rate justification previously submitted was insufficient. RHC Review recently sent the HCPs and GCI initial information requests for an additional 92 FRNs. GCI hereby provides a comprehensive response to all outstanding requests, supplementing and clarifying its previously submitted justification.

All of the Funding Year 2017 requests, including the 193 FRNs subject to further review, were the subject of competitive bidding, which should by itself provide conclusive evidence of reasonable rates. Competitive bidding in Alaska has been vigorous and, since 2013, GCI has not won even a majority of competitive bids. Nonetheless, this response also demonstrates that the rates GCI has proposed to charge for Funding Year 2017 meet the requirements of 47 C.F.R. § 54.607(a) or are cost-justified under § 54.607(b).

This explanatory response is divided into the following sections: The first section explains that GCI’s rural rate justification methodology for the transport component of the Ethernet service is permissible under 47 C.F.R. § 54.607(a). The second section provides the specific justifications for the transport component of the rural rate for each of three network systems that GCI uses to provision the service: (1) TERRA, (2) Satellite, and (3) Non-TERRA Terrestrial. The third section provides the additional indicia of reasonableness for the transport component of the rural rate, including a cost model that demonstrates that GCI’s rates for Ethernet service on the TERRA network are justified under rate of return principles. The fourth section provides the justification for the local loop component of the rural rate pursuant to 47

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C.F.R. § 54.607(b). These four discussion sections apply to all of the 193 FRNs now under review. The final section provides the additional information responding to RHC Review's requests regarding the additional 92 FRNs.

The primary documentation of the information contained in this explanatory letter can be found in the attached spreadsheets labeled "Master FRN Worksheet" and "TERRA-Satellite-Terrestrial Comparables." Other materials used to support this submission are referenced below and attached hereto.

I. SECTION 54.607(a) PERMITS GCI'S RURAL RATE JUSTIFICATION METHODOLOGY

Section 54.607(a) states: "The rural rate shall be the average of the rates actually being charged to commercial customers, other than health care providers, for identical or similar services provided by the telecommunications carrier providing the service in the rural area in which the health care provider is located."¹ HCPs are required to use this method unless the carrier does not provide "any identical or similar services in the rural area,"² in which case the rural rate must be calculated as "the average of the tariffed and other publicly available rates, not including any rates reduced by universal service programs, charged for the same or similar services in that rural area."³ And if "there are no tariffed or publicly available rates for such services in that rural area, or if the carrier reasonably determines that this method for calculating the rural rate is unfair, then the carrier shall submit . . . a cost-based rate" for approval by the FCC or state commission, as applicable.⁴

GCI provides symmetric, dedicated broadband Ethernet service to qualifying health care facilities throughout Alaska (the "MPLS service" or "MPLS," an acronym for Multiprotocol Label Switching).⁵ The service is provisioned over three network systems: (1) GCI's microwave network ("TERRA"), (2) a system of satellites ("Satellite"), and (3) GCI's terrestrial network that is not on the TERRA network ("Non-TERRA Terrestrial"). In some instances, GCI provides service over a blended network of TERRA and Satellite, particularly when only a portion of an HCP's locations can be served from the TERRA network.

¹ 47 C.F.R. § 54.607(a).

² See *id.* ("The rural rate *shall* be . . .") (emphasis added); see also, e.g., Letter from USAC to [REDACTED] RHC Telecommunications Program – Rural and Urban Rate Request HCP #s [REDACTED], at 3 (Nov. 3, 2017) ("Note, pursuant to FCC rules, you are required to select (a), unless the service provider is not providing identical or similar services.").

³ 47 C.F.R. § 54.607(b).

⁴ *Id.*

⁵ In this response, we sometimes refer to this MPLS service as "Ethernet," as is done colloquially, including in FCC orders.

A. The Applicable “Rural Area”

Alaska’s large size, varied terrain, harsh climate, isolated populations, and lack of infrastructure are well-known challenges.⁶ As a result, the FCC generally divides the state into two areas for the purposes of USF funding: remote and non-remote.⁷

1. Satellite Rural Area: “Remote Alaska”

The geographic region used to determine the rural rate for services on Satellite is the “remote areas in Alaska,” which “includes all of Alaska except; (A) The ACS-Anchorage incumbent study area; (B) The ACS-Juneau incumbent study area; (C) The fairbankszone1 disaggregation zone in the ACS-Fairbanks incumbent study area; and (D) The Chugiak 1 and 2 and Eagle River 1 and 2 disaggregation zones of the Matanuska Telephone Association incumbent study area.”⁸ (This area is referred to as “Remote Alaska.”)

2. TERRA Rural Area: “Remote Alaska—TERRA Areas”

Unlike Satellite, TERRA is not available everywhere in Remote Alaska. It is only available in a subset of Remote Alaska that lies west of the Cook Inlet, is not on the highway system, and is part of the Alaska mainland. This area is comprised of communities that are geographically isolated from the other areas of the State and that are accessible only by boat or airplane. Unlike the southeastern region of Alaska, these communities are also not adjacent to the fiber routes between Alaska and the Lower 48 states. (This area is referred to as “Remote Alaska—TERRA Areas” for purposes of the FRN Spreadsheet.)

It is impractical to further subdivide the state for TERRA and Satellite because rates for these services generally are not based on geography and there would not be any commercial customers available to compare in many of the very remote locations where HCPs are served by TERRA and Satellite. Rates for satellite-based services are postalized, i.e., they do not vary according to distance or geographic location. Rates for TERRA-based services were initially entirely postalized and now are postalized within two broad categories: Regional Hubs to Anchorage, and connections between all other locations.

⁶ See *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd. 10,139, 10,141–42 ¶ 5 (2016).

⁷ *Id.* at 10,160–62 ¶¶ 68–72.

⁸ 47 C.F.R. § 54.307(e)(3)(i); see also *Connect America Fund et al.*, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd. 17,663, 17,835 ¶ 529 n.876 (2011), *aff’d sub nom In re FCC 11-161*, 753 F.3d 1015 (10th Cir. 2014).

3. Non-TERRA Terrestrial Area: “Remote Alaska—Non-TERRA Terrestrial Area”

GCI serves commercial customers located in parts of Remote Alaska that primarily are on or near to the main road or rail system over a Non-TERRA Terrestrial network. It also includes areas adjacent to the undersea cables that connect Alaska to the contiguous 48 states. The majority of this network is located in southcentral and southeast Alaska. The network also cross-sects the State from south to north in one primarily linear path. GCI serves more commercial customers in these areas than in areas served only by TERRA or by Satellite because much of the Alaskan population is centered on or near to the main road systems. Despite the larger population in these areas, commercial customers are still limited and few purchase the dedicated, symmetrical Ethernet services that HCPs require. In the vast majority of these areas, the cost bases for the transport element of the Ethernet service are similar, with price variation based on the local access connection that GCI purchases from the local exchange carrier or for which GCI overbuilds. Where the economics do not support a GCI build-out of its network or local access connection to the HCP location, GCI’s costs are based on a resale of another carrier’s network. Accordingly, GCI treats this as one area within Remote Alaska (“Remote Alaska—Non-TERRA Terrestrial Area”).

B. “Identical or Similar Services”

As a preliminary matter, the FCC has never provided guidance as to what constitutes “similar services” in the context of comparing commercial customer rates with rates charged to rural health care providers. In its *2003 RHC Report and Order*,⁹ the FCC interpreted the phrase “similar services” with regard to a statutory requirement to compare rates charged in rural areas to rates charged in urban areas.¹⁰ In interpreting this provision, the Commission concluded that it requires “rural health care providers to compare the urban and rural rates for *functionally* similar services *as viewed from the perspective of the end user*.”¹¹ Based on its view of then-available technologies, the Commission established “‘safe harbor’ categories of functionally equivalent services based on the advertised speed and nature of the service.”¹² It provided five tiers of speeds that were considered, at the time, to be functionally equivalent and noted that the symmetry of the service would also be considered in determining similarity: 144-256 kbps (“low”); 257-768 kbps (“medium”); 769-1400 kbps (“high”); 1.41-8 Mbps (“T-1”); and 8.1-

⁹ *Rural Health Care Support Mechanism*, Report and Order, Order on Reconsideration, and Notice of Proposed Rulemaking, 18 FCC Rcd. 24,546 (2003) (“*2003 RHC Report & Order*”).

¹⁰ 47 U.S.C. § 254(h)(1)(A) (requiring carriers serving rural areas to provide “rates that are reasonably comparable to rates charged for similar services in urban areas”); *see also 2003 Report & Order* at 24,563 ¶ 31.

¹¹ *2003 RHC Report & Order* at 24,563 ¶ 33 (second emphasis added).

¹² *Id.* at 24,564 ¶ 34.

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50 Mbps (“T-3”).¹³ In adopting these safe harbors, the Commission made clear that its objective was to ensure that urban rates for less costly, newer technologies could be used as a basis for determining the urban-rural differential subject to support.¹⁴

Notably, the FCC has never articulated, or even implied, that this same analysis applies to the comparability of rural commercial rates under § 54.607(a). In addition, nothing in the 2003 *RHC Report & Order* establishing safe harbor ranges for the urban-rural comparison establishes that the comparison is one of absolute price, as opposed to the price per unit, such as per Mbps or per T-1. Indeed, the fact that the T-1 safe harbor range spans 1.41-8 Mbps suggests that comparison would have to be per unit of capacity. To read the safe harbor otherwise (i.e., as addressing the absolute price) would mean that it encompasses only the situation in which the total contract price for a single T-1 is equal to the total contract price for 5 T-1s (totaling 7.5 Mbps), or an 8-Mbps Ethernet service. Such an interpretation would render the safe harbor useless. Thus, even if these safe harbors were to apply to the comparison of rural health care provider rates and commercial rates, they would have to embrace a per-Mbps comparison, not just a comparison of the total contract price irrespective of capacity.

In any event, even if these safe harbors are applicable to § 54.607(a), a safe harbor is by its very nature only *one* possible methodology to arrive at a result. Therefore, a party *may* use a safe harbor, but it is *not required* to use the safe harbor. Other methods of demonstrating the comparability of rates charged to commercial customers and to health care providers can also be used. This is consistent with the Commission’s use of safe harbors in other contexts; parties can choose to avail themselves of a safe harbor—and if they do so, they are afforded a presumption of compliance—or they can rely on a different compliance methodology.¹⁵

¹³ *Id.*

¹⁴ *Id.* at 24,563 ¶ 33 (“We agree with commenters that our current policy of comparing technically similar services does not take into account that certain telecommunications services offered in urban areas are not always available in rural areas. In particular, new technologies are often first deployed in urban areas, and such services may be less expensive than services in rural areas based on older technologies. This modification to our rules will better effectuate the mandate of Congress to ensure comparable services for rural areas . . . by allowing rural health care providers to benefit from obtaining telecommunications services at rates equivalent to those in urban areas.”).

¹⁵ *See, e.g.*, 2017 Instructions to the Telecommunications Reporting Worksheet, FCC Form 499-A, at 39 (Jan. 2017) (explaining that various providers “that choose to avail themselves of safe harbor percentages for interstate revenues may assume that the FCC will not find it necessary to review or question the data underlying their reported percentages”); *id.* at 36 (explaining that, to comply with the rule that a filer must “demonstrate that it has a ‘reasonable expectation’ that a customer contributes to federal universal service support mechanisms,” filers who comply with certain procedures will be afforded a safe harbor but otherwise must provide “other reliable proof” of the reasonable expectation); 47 U.S.C. § 1006(a) (providing that “compliance with [certain] publicly available technical requirements or standards” is a

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In addition, the 2003 safe harbors are outdated and have not been updated to reflect changes in technology. The Commission is well aware of this problem, which it noted in a recently initiated rulemaking proceeding to overhaul the RHC program.¹⁶ Notably, the 2003 safe harbor categories do not extend above 50 Mbps, which means they do not cover the levels of bandwidth capacity that have taken hold in recent years. And the fact that the “low,” “medium,” and “high” categories are essentially obsolete indicates that the safe harbors need to be updated to reflect current broadband realities. Updating the safe harbors might well involve consolidating and widening the existing categories to reflect that the availability of higher broadband speeds renders more disparate bandwidths functionally similar from the perspective of the end user. In any case, despite the Commission’s commitment to updating the safe harbors “to reflect technological developments,”¹⁷ and the fact that the safe harbors are intended to allow rate comparisons “in an administratively easy fashion,”¹⁸ it has not done so.

Therefore, it is eminently reasonable to use a methodology other than an outdated safe harbor to justify that the rates charged to rural health care providers are reasonably comparable to those charged to commercial customers in the same area. GCI’s method has been to examine the rates charged to its commercial customers on a per-Mbps basis, and then to ensure that its rural health care customers were charged less than that per-Mbps rate. In this manner, the commercial comparable rate sets a cap, which is the only rational way to reconcile both the rate provisions of § 54.607 and the competitive bidding requirement of § 54.603.

GCI has used the same methodology consistently over the years to justify the rural rates in its HCP contracts, and USAC has approved the methodology on multiple occasions. First, in 2009–2010, USAC engaged in an extensive pre-commitment review of one of Alaska’s largest health care providers, [REDACTED]. At the time of the review, [REDACTED] main medical facilities were connected with five sub-regional clinics and over 40 village clinics. Service was provisioned over the DeltaNet regional microwave network (which was incorporated in the TERRA network). GCI presented as a comparable rate a contract for service provided [REDACTED] which was compared on a per-Mbps basis. The review culminated in a Funding Commitment Letter (“2010 FCL”) for all [REDACTED] locations and prices for each location.

The FCL and the supporting letters from GCI are attached hereto as a PDF labeled “2010 FCL and 2015 Audit Letter” in the Supporting Documentation folder. Although the individual circuits procured were relatively modest (1.5-5 Mbps), the overall middle-mile bandwidth capacity purchase across what became the TERRA network was large, over 200 Mbps. Since

“safe harbor” for the Communications Assistance for Law Enforcement Act requirements codified at § 1002).

¹⁶ *Promoting Telehealth in Rural America*, Notice of Proposed Rulemaking and Order, 32 FCC Rcd. 10,631, 10,655 ¶ 73 (2017).

¹⁷ *2003 RHC Report and Order* at 24,564 ¶ 34.

¹⁸ *Id.*

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USAC approved rates under this methodology, GCI continued to rely on the same methodology it used to develop the rates in the FCL, along with the actual rates approved in the 2010 FCL, to formulate the rural rate for services going forward. Notably, the per-Mbps rates for these same services to this same HCP—which are now provided over the enlarged TERRA network—have decreased over time while the HCP bandwidth requirement has increased as a result of GCI's TERRA pricing decreases.

More recently, in August 2015, USAC audited several contracts from Funding Year 2012 for which GCI was the service provider. This 2015 audit covered a [REDACTED] clinic that was subject to the 2010 FCL that had been transitioned from the precursor microwave network onto the TERRA network. The 2015 audit also covered three non-[REDACTED] clinics served by Satellite:

[REDACTED]
[REDACTED] Here again, GCI used the same methodology to justify its rates, and USAC approved the rates. The rural rates for the Satellite services that USAC deemed reasonable just over 2 years ago are similar to the Satellite rates for the FRNs herein.

In addition, current generation satellite services are not “similar services” required to be averaged with terrestrial rates, due to differences in service quality, especially latency.¹⁹ Latency, “the time it takes for a signal to get from one place to another,” is often a problem with satellite service due to the orbital height of the satellites, which currently are geostationary orbits.²⁰ Furthermore, while terrestrial fiber networks are built in “rings” to maintain connectivity, satellites lack an equivalent method for ensuring reliability of service. As a result of these performance and reliability limitations, satellite service often requires extra bandwidth to offer service that is functionally equivalent to that offered by its terrestrial counterpart. This extra bandwidth means extra costs. The FCC's existing rules recognize that satellite services are not comparable to terrestrial services, using higher quality terrestrial rates to cap lower quality satellite rates, but not the reverse.²¹ To the extent that a lower-priced satellite service and a higher-priced terrestrial service can perform the same functions, the Telecommunications Program rules address this by requiring the HCP to select “the most cost-effective method of providing the requested service or services, where the most cost-effective method of providing the service is . . . the method that costs the least after consideration of the features, quality of

¹⁹ It is important to note that a rate for a lower quality satellite service could be used to justify a rate for a higher quality terrestrial service in the absence of a comparable terrestrial commercial rate.

²⁰ David Meyer, *Here's What You Need to Know About SpaceX's Satellite Broadband Plans*, Fortune, Feb. 22, 2018, <http://fortune.com/2018/02/22/spacex-starlink-satellite-broadband>.

²¹ 2003 RHC Report & Order at 24,568, 24,569 ¶ 44.

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transmission, reliability, and other factors that the health care provider deems relevant to choosing a method of providing the required health care services.”²²

II. GCI’S RURAL RATE TRANSPORT COMPONENT IS JUSTIFIED PURSUANT TO SECTION 54.607(a)

GCI’s rural rates for its HCP customers are justified pursuant to Section 54.607(a). As discussed above, GCI averages the rates it charges its commercial customers for similar services in the rural area in which the HCP is located to calculate the applicable maximum per-Mbps rural rates for each HCP in the RHC Program for which GCI provisions service. This methodology is consistent with GCI’s past practices—reviewed and approved by USAC—and fulfills the goal of the similar services requirement to compare “functionally similar services as viewed from the perspective of the end user.”²³ There is no doubt that a commercial customer utilizing 3 Mbps of dedicated Ethernet has the exact same experience as an HCP end user consuming 50 Mbps of dedicated Ethernet service.

GCI’s November 21, 2017, submission utilized this same methodology and demonstrated that the HCP rates were capped at the average per-Mbps rates of its commercial customers purchasing dedicated Ethernet. Column Q of the Master FRN Spreadsheet contains these per-Mbps comparables for TERRA, Satellite, and Non-TERRA Terrestrial based on GCI’s complete inventory search of all commercial contracts. These commercial comparable rates for the same services as viewed from the perspective of the end user justify GCI’s HCP rates under Section 54.607(a).

Despite submitting justifications that relied on the same methodology previously reviewed and approved by USAC and that adhered to the similar services requirements, GCI undertook to develop alternative justifications based on feedback from staff in the Wireline Competition Bureau Telecommunications Access Policy Division. At their suggestion, GCI also performed this new methodology that brought in its E-Rate customer rates for Ethernet services as part of its average of commercial customer rates. In addition, GCI divided its HCP and comparable services into safe harbor bands, having to adapt the bands to fulfill modern technology bandwidth requirements.²⁴ Even applying the new methodology using E-Rate customers and safe harbor tiers, the transport component of GCI’s rural rates are justified.

A. TERRA Transport Charges

GCI TERRA transport charges are priced consistently for all customers, including commercial customers, rural HCPs, and schools and libraries under the E-rate program. The

²² 47 C.F.R. § 54.603(b)(4).

²³ See *supra* n. 11 and accompanying text.

²⁴ As explained below, applying this new methodology produces some skewed results, especially as applied to GCI’s TERRA pricing methodology that increases discounts as volumes and terms increase. For instance, some HCPs are purchasing smaller volume services for shorter terms

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pricing is based off of a publicly-posted TERRA rate table that changes from time to time.²⁵ The route (*i.e.*, whether it is a regional center to Anchorage, or between all other points on the TERRA network), aggregate bandwidth, and term length are used to determine which hub port component and edge port component within the matrix applies to each customer. For Funding Year 2017, Table 1 pricing is used for services between Anchorage and a regional center, and Table 2 pricing is used for all other locations. Critical Community Facilities—public facilities that provide community services essential for supporting the safety, health and well-being of residents, including, but not limited to, emergency response, public safety, hospitals, health clinics, libraries, and schools—may elect to receive a 25% discount off the published TERRA month-to-month rates in lieu of the standard term and volume discounts available in Table 1 and Table 2.²⁶ GCI charges the lower of the two rates to its HCP customers.

GCI's TERRA rates include both volume and term discounts, with the volume determined according to the customer's aggregate TERRA monthly volume. Higher volume bandwidth purchases and longer term contracts are given deeper discounts. Prior to 2017, the TERRA rates bands were: 1-25 Mbps, 26-50 Mbps, 51-100 Mbps, 101-150 Mbps, 151-200 Mbps, 201-250 Mbps, 251-300 Mbps, 301-400 Mbps, and 400+ Mbps. In 2017, GCI collapsed its lower rate bands into a single band that was priced based on what had been the per-Mbps rate in the 51-100 Mbps band. Accordingly, the rates bands are now: 1-100 Mbps, 101-150 Mbps, 151-200 Mbps, 201-300 Mbps, 301-400 Mbps, and 400+ Mbps. Within the TERRA rate tables, there is significant price compression based on volume and term commitments.²⁷

Importantly, because GCI allows a customer to aggregate the bandwidth for all TERRA-served locations to arrive at the discounted rate, the rate bands cannot be correlated to safe harbor ranges for individual circuits to a specific FRN-delineated customer location. This aggregation results in lower rates to the customer than if GCI had created a rate structure based on the bandwidth purchased for a specific location. For example, the TERRA rate for a health care customer with 10 clinic locations is based on the aggregated bandwidth of all locations. If

than E-rate customers. When including the pre-discounted E-rate rates in the comparables, the volume/term differentials can be resolved by identifying the appropriate volume and term discounts on the TERRA rates tables.

²⁵ For GCI's latest TERRA rate table, *see* GCI, *TERRA Product Descriptions & Pricing* 4, tbl.1 & tbl.2 (2017), https://www.gci.com/-/media/files/gci/regulatory/gci_terra_posting_effective_070117.pdf. There are two past iterations of the TERRA rate tables that GCI used to develop the rate for its FY 2017 HCP, E-rate, and commercial customers. These tables were effective in 2012 and 2015, and are included in the supporting materials submitted herein.

²⁶ *See, e.g., id.* at 4. The 25% discount for Critical Community Facilities was a commitment GCI made as part of its grant/loan proposal to the Rural Utility Service.

²⁷ While the sunk network investment in TERRA allows for volume discounts, the ability to do so is limited as compared to locations that are reliably served by fiber because once capacity limits are reached, the cost of delivering additional capacity is significant.

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the customer purchases a 15-Mbps service for each clinic, then the TERRA rate for each clinic would be derived from the 101-150 rate band, not the 1-100 rate band. Therefore, **although TERRA pricing may appear linear based on a clinic-by-clinic comparison within the same health care provider contract, that linear appearance masks the significant discount that purchasers of larger volumes receive—because every clinic within that HCP contract received the benefit of the aggregated rate.**

As explained herein, GCI's TERRA commercial customer average per-Mbps rates justify the rural TERRA rates to HCPs. To formulate the average of its TERRA rates, GCI searched its entire invoice inventory for commercial customers that purchase dedicated, symmetrical Ethernet service on the TERRA network. All identified commercial customers that purchase dedicated Ethernet service are included in the comparable calculations. To compute the average, the average from the year prior to the year the contract was entered is used as the comparison to the HCP rate. Column P of the FRN Master Spreadsheet contain the commercial per-Mbps averages. These averages demonstrate that the per-Mbps rate charged to HCPs is capped by the commercial average rates, which are represented in Column Q. Accordingly, GCI's rates are justified pursuant to Section 54.607(a).

In addition, at the suggestion of FCC staff, GCI has also included a TERRA rate average that includes its non-discounted TERRA E-rate customer rates for identical or similar services. Specifically, the pre-discounted rate for dedicated, symmetrical bandwidth delivered over TERRA is included in the average. To perform the analysis suggested by the FCC, GCI also applied averages within the safe harbor tiers. Although the FCC did not expressly include higher tiers in its safe harbor, in order to adopt the safe harbors to the consumption levels of its HCP customers, GCI has assumed that by ending the safe harbor tiers at 50 Mbps, the FCC did not intend to prohibit services over 50 Mbps from utilizing the safe harbor. To solve for the safe harbor's bandwidth limitations, GCI has applied two additional, higher tiers above the existing safe harbor tiers for its high aggregated bandwidth TERRA services: a "middle bandwidth" tier of 51 to 300 Mbps and a "high bandwidth" tier of 301+ Mbps. The HCP's aggregate bandwidth purchase is used to select the average from the appropriate safe harbor tier. Column R includes the comparable rate with the E-rate customers included in the average and applying the safe harbor bands.

Aggregating the individual circuits by customer reveals the true per-Mbps rate of the TERRA services for all of that customer's locations. These per-Mbps rates are justified by GCI's commercial customers averages. In addition, they can be grouped into the FCC's safe harbor tiers, as well as the 51-300 Mbps and 301+ Mbps tiers for higher bandwidth services. Starting where the FCC's safe harbor ends, these additional tiers generally align with GCI's TERRA rate table and group together the middle bandwidth tiers while treating the highest bandwidth tiers as a separate tier.

Comparing the commercial averages to the HCP rates within these tiers, however, is not necessarily an apples-to-apples comparison even within the expanded safe harbor tier structure. This is because there is not a commercial or E-rate customer purchasing at every possible price configuration (bandwidth/term) on the TERRA table. This is due in large part because of the

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few commercial customers located in Remote Alaska, very few of these require the same dedicated, symmetrical Ethernet that HPCs require in order to provide telemedicine services. In other words, it is not the case that commercial customers are not buying TERRA services from GCI, but rather contended bandwidth services are sufficient to satisfy their transport needs. The fact that there is not an exact comparable rate, however, does not mean that the HCP's price is too high or too low. Instead, it only indicates that the HCP is buying a different aggregate amount of bandwidth (e.g., 150 versus 400) or for a different term (e.g., 1 year versus 5 years). For example, [REDACTED]

[REDACTED] I [REDACTED] increased its bandwidth consumption to the same level as [REDACTED], then its services would be priced the same as the LKSD service (assuming the same term). And, if [REDACTED] decreased its bandwidth consumption to the same level as [REDACTED], then its services would be priced the same as the [REDACTED] services (assuming the same term). But the fact that [REDACTED] does not purchase the same amount of bandwidth as [REDACTED] or [REDACTED] does not mean that [REDACTED] rate is above the appropriate level.

The instances where there is no commercial comparable rate under the augmented safe harbor range are left blank in the Comparable Rate (per Mbps) column in the FRN Master Spreadsheet. As explained herein, these rates are justified pursuant to § 54.607(a) even though GCI does not sell the *exact* bandwidth with the *same* contract term to a commercial or E-rate customer. These rates all fall within a range of reasonableness established by the other commercial comparables within the TERRA rate table. Concluding that a rate in an HCP contract for which there is no commercial customer purchasing in that exact TERRA rate band cannot be justified by GCI's commercial sales would be irrational, especially given there are commercial customers purchasing in both lower and higher bands.

B. Satellite Transport Charges

GCI provisions Satellite transport to customers via various wholesale arrangements for transponder space. GCI pays the same per-Mbps price for each Mbps of space that it rents on a satellite transponder. Therefore, **there is no price compression for larger bandwidth purchases over satellite because there are no economies of scale. This results in linear Satellite pricing.**²⁸ Therefore, a pure per-Mbps pricing comparison, regardless of bandwidth, accurately reflects the pricing of Satellite MPLS transport service. As is the case with the per-Mbps of TERRA services, a per-Mbps comparability methodology as applied to Satellite also is consistent with the similar services requirement and comports with the methodology GCI used to justify Satellite rates to HCPs in the 2010 FCL process and the 2015 audit.

²⁸ Cf. *supra* n. 26 and accompanying text.

[REDACTED]

The per-Mbps comparison demonstrates the GCI's Satellite rates are lower than the commercial customer averages, regardless of whether the pre-discounted rates for dedicated, symmetrical bandwidth delivered over Satellite to E-Rate customer are included in the average or whether the safe harbor methodology proposed by staff is applied. As shown in the Master FRN Spreadsheet, GCI's Satellite commercial customer average rates justify the Satellite rural rates. To formulate the average of its Satellite rates, GCI searched its entire invoice inventory for commercial customers that purchase dedicated, symmetrical Ethernet service on GCI's Satellite network. All identified commercial customers that purchase dedicated Ethernet service are included in the comparable calculations. Because there is no price compression with Satellite Ethernet services, these comparables were not placed into safe harbor categories. Nevertheless, should USAC incorrectly insist on a safe harbor comparison notwithstanding the lack of economies of scale, it will find that most of the HCP Satellite services are lower than the comparable commercial customer average within the relevant safe harbor category.

C. Non-TERRA Terrestrial Transport Charges

GCI Non-TERRA Terrestrial transport is delivered over various segments of GCI's non-TERRA network. The rates for Ethernet services over Non-TERRA Terrestrial transport vary to a much greater degree than the rates for TERRA or Satellite transport. This is because more competitors are present in these areas, and GCI is likely to rely on segments from other carriers to provision some aspects of the transport service. In addition, some HCPs require a high level of availability, for which they request and competitively bid redundant service. This solution uses diverse paths that operate as a unified communication channel to eliminate outages caused by equipment failure, weather impacts, or cut or damaged cables. To meet this level of availability, every component in the delivery chain is diverse. Despite these factors, GCI is still able to provide rates for HCPs on Non-TERRA Terrestrial customers that are lower than its commercial customers' rates.

GCI's Non-TERRA Terrestrial commercial customer average rates justify the HCP rural rates. To formulate the average of its Non-TERRA Terrestrial Transport rates, GCI searched its entire invoice inventory for commercial customers that purchase dedicated, symmetrical Ethernet service on the Non-TERRA Terrestrial network. All identified commercial customers that purchase dedicated Ethernet service are included in the comparable calculations. Column Q of the FRN Master Spreadsheet contains the commercial comparable rate and when compared to the HCP per-Mbps rate in Column P, demonstrates that with one exception, GCI's Non-TERRA Terrestrial HCP rates are justified pursuant to Section 54.607(a). As explained in the FRN Master Spreadsheet and below, the one exception is due to an expensive transport charge that GCI purchased from a third party to deliver the service.

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In addition, GCI grouped its Non-TERRA Terrestrial Transport commercial comparables by safe harbor categories.²⁹ Even within these safe harbor categories, GCI's Non-TERRA Terrestrial HCP rates are capped at the commercial customer averages with the one exception described above.

III. GCI'S RURAL RATE TRANSPORT COMPONENT IS JUSTIFIED BY OTHER INDICIA OF REASONABLENESS, INCLUDING A GCI COST STUDY

A. The TERRA Cost Model Indicates that GCI's Rural Rates Are Cost-Based and Justified

Section 54.607(b) provides that if there are no tariffed or publicly available rates or if the carrier determines that this method for calculating the rural rate is unfair, then it "shall submit for the . . . Commission's approval, for interstate rates, a cost-based rate for the provision of the service in the most economically efficient, reasonably available manner."³⁰ Although GCI has justified its rates under § 54.607(a), it also engaged in an extensive internal analysis of its TERRA rates and developed a rate of return cost study for these services.³¹

Because the Commission has no rules or guidance governing how a cost study should be prepared for non-tariffed, non-dominant interexchange services, GCI developed the study based on its accounting records. The study examines costs and revenues for calendar years 2014 through 2017. For TERRA, GCI identified direct costs of providing transport services over these facilities and attributed those direct costs to TERRA. GCI also identified common costs and applied cost allocation methodologies that it believes are reasonable, allocating costs based on the proportion of the plant in service. GCI used its invoiced revenues for transport services over these facilities to determine revenues. For the TERRA capacity that GCI procured from its United Utilities subsidiary, GCI assigned revenues at the TERRA rate table rates for a 25-year term for 500 Mbps of capacity, reflecting what GCI has procured and what would be available to a competitor seeking to purchase the same amount of capacity for the same term commitment.³² In the absence of an FCC-prescribed rate of return for these services, GCI utilized the permitted

²⁹ GCI does not sell dedicated, symmetrical Ethernet over its Non-TERRA Terrestrial network to any E-Rate customers and, therefore, there were no E-rate rates to include in the modified averaging approach.


³⁰ 47 C.F.R. § 54.607(b).

³¹ Because of the limited time available to prepare this study for submission, GCI may make further updates. In addition, GCI is preparing a similar study with respect to its satellite rates.

³² As part of its RUS Broadband Infrastructure Program grant application, GCI committed to make such a long-term purchase commitment for capacity on the TERRA network.

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rate of return for a given period authorized for rural incumbent local exchange carriers.³³ We note, however, that the rural ILEC prescribed rates likely substantially understate the appropriate rate of return for a project in the TERRA region. Deployment of long-lived, highly capital-intensive facilities in these sparsely populated areas is particularly risky because of the low levels of commercial enterprise and residential demand – demand which is further depressed by the state of the Alaska economy. Moreover, these investments can be stranded if villages cease to exist, as could be the case, for example, if the State of Alaska were to raise the minimum size of a school from the current ten students, to 25, as some have proposed. These risks of stranded investment are unique. Moreover, unlike rural incumbent LECs, GCI's TERRA network costs cannot participate in NECA pooling – which the Commission recognized reduces the risk for rural incumbent LEC investments.³⁴ In addition, Quintillion entry into at least three regional centers – which are critical sources of demand – as well as the potential entry from advanced satellite services, further increases the risk of stranding long-lived capital investment in the TERRA region.



GCI submitted the TERRA Cost Study to The Brattle Group, a preeminent economics consulting firm, to review and provide input. Brattle reviewed the cost study with respect to the study's evaluation of the realized rates of return for transport services offered over these facilities, and whether the rates were set at levels that created an economic cross-subsidy. The Brattle Group's report indicates the rate-of-return methodology was reasonable and in line with recognized practices, and that the rates were above incremental cost and below standalone cost, and thus did not create any economic cross-subsidies. The Brattle Group's report is attached hereto. Accordingly, the Cost Study and accompanying Brattle Report show that the TERRA rates GCI has proposed to charge for Funding Year 2017—and that it has charged for prior years—are reasonable.

**B. Ethernet Market Dynamics and the Competitive Bidding Structure
Indicate that GCI's Rural Rates Are Reasonable**

Rural rates in Alaska are already both justified and market-disciplined. There is a competitive market for selling telecommunications services to health care providers in rural Alaska. Furthermore, competition is only continuing to increase, as new competitors have launched fiber-based service to northwest Alaska, and new advanced non-geostationary satellite constellations are on the cusp of promising low-latency broadband. Faced with these market realities, GCI has consistently reduced the per-Mbps rates charged to health care providers in the

³³ See *Connect America Fund et al.*, Report and Order, Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking, 31 FCC Rcd. 3087, 3212 ¶ 326 (2016).

³⁴ *Id.* ¶¶ 292-293.

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RHC Program; the increase in total dollars requested for funding is a direct result of increased health care provider demand for bandwidth.

It is important to recognize as a starting point that these services are all interstate, interexchange services offered by a non-dominant carrier. Non-dominant interstate, interexchange rates have never been subject to rate regulation.³⁵ Moreover, the Commission forbore from—and mandatorily de-tariffed—these services in 1996.³⁶ In other words, these are services for which the Commission has already determined that the market is sufficiently competitive to ensure just and reasonable rates.

Furthermore, the Commission has recently reaffirmed that Ethernet services should not be subject to any rate regulation scheme, but instead should utilize market-based rates. In its *Business Data Service Order*, the Commission “decline[d] to re-impose any form of price cap or benchmark regulation on packet-based business data services.”³⁷ The Commission did so without regard to whether there was a nearby competitor.³⁸ It took this action because “[p]acket-based services represent the future of business data services and are readily scalable,” making them more attractive for competitive investment, and because “[p]acket-based services are new services, experiencing both rapid growth, and rapid change in standards, throughput and usage, and so regulation is more likely to impose long-term costs by dissuading providers of packet-based services from entering.”³⁹ Moreover, in rejecting benchmark regulation, the Commission declined to regulate the relationship between lower bandwidth levels and higher bandwidth levels of Ethernet in the commercial marketplace. The Commission concluded that “because our market analysis shows that [Ethernet] services are subject to competition, anchor or benchmark pricing is unnecessary and could in fact inhibit investment in this dynamic market by preventing providers from being able to obtain adequate returns on capital.”⁴⁰ Although parties strongly endeavored to propose workable benchmark pricing proposals, the Commission concluded that the benchmark pricing proposals “were administratively complex and unlikely to reliably result in just and reasonable rates.”⁴¹ There is no reason to believe that rate regulation of Ethernet pricing in remote Alaska would be any different.

³⁵ See *Motion of AT&T Corp. to Be Reclassified as a Non-Dominant Carrier*, Order, 11 FCC Rcd. 3271, 3274 ¶ 4 (1995).

³⁶ See generally *Policy and Rules Concerning the Interstate, Interexchange Marketplace et al.*, Order, 15 FCC Rcd. 22,321 (2000).

³⁷ *Business Data Services in an Internet Protocol Environment et al.*, Report and Order, 32 FCC Rcd. 3459, 3499 ¶ 87 (2017).

³⁸ *Id.* at 3500 ¶ 88.

³⁹ *Id.*

⁴⁰ *Id.* at 3500 ¶ 87.

⁴¹ *Id.*

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Competition in the market for the services of the type provided in the RHC Program is growing. The Requests For Proposal (“RFPs”) issued by health care providers under the RHC Program attract multiple bidders, including ACS, Leonardo DRS, AT&T, and GCI. Furthermore, new competitors—such as Quintillion (a terrestrial and undersea fiber provider) and various advanced satellite providers, including SpaceX, OneWeb, Space Norway, and Telesat—have recently entered, or will soon enter, the market. These new entrants will continue to supplement and enhance the competition that already exists.

Notably, Quintillion’s entry into the market demonstrates that the communications market in rural Alaska is both conducive to competitive entry and offers competitive market conditions. Actual market entry by a competitor like Quintillion will either further discipline current market pricing (if the new entrant offers prices that are significantly lower) or reaffirm that existing market pricing is reasonable (if the new entrant offers services at or near the same rate as existing competitors). In addition, various non-geostationary satellite constellations have been proposed that would include low-latency, high-capacity service to Alaska, including the far northern areas that are much more difficult to reach from geostationary satellites. Accordingly, the fact that the market is competitive should dissuade any concern on the part of the Commission that GCI’s rates are artificially high. GCI’s rates are reasonable, given the high cost and risk inherent in building out a network in Alaska.

Among these competitors, competitive bidding for RHC contracts is robust.

[REDACTED]

A win rate of under [REDACTED] percent in the RHC Program clearly demonstrates the existence of a competitive market, which is highly indicative of reasonable rates.

IV. THE LOCAL LOOP COMPONENT OF GCI’S RURAL RATE IS JUSTIFIED BY PUBLICLY AVAILABLE TARIFFS, PURSUANT TO § 54.607(b)

In addition to the transport charge for the Ethernet service provisioned via TERRA, Satellite, or Non-TERRA Terrestrial networks, the services include a local access component (*i.e.*, the local loop charge), which may be bundled in the Ethernet price or separated out as an individual line item, depending on the billing arrangements with the customer.

GCI’s rates are comparable to the monthly recurring charges for special access channel termination in the ACS tariffs or NECA tariffs, from which the local exchange carrier priced

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channel terminations in the relevant service areas. To deliver the Ethernet service to the HCP, GCI either self-provisioned the local loop connection or purchased local loops to fulfill the contract. To calculate the local loop component in the RHC contracts, GCI must determine how many channel terminations would be required to furnish the service. Under the ILEC tariffs, there are at least two channel terminations for each end of the service. The number of total channel terminations required per MPLS connection depends on the capacity of the connection. For purposes of calculating the local loop charge if a customer purchased the service off of the local exchange carrier tariff, we assumed use of DS1s for bandwidths less than 12 Mbps and DS3s for services between 12 and 45 Mbps for a particular location. For example, a 5-Mbps Ethernet service would require four channel terminations at each location, two at each end, for a total of eight on each side of the connection. We then looked up, for each location, the local carrier's tariffed rate for this service. The local loop calculations are available in the attached "Local Loop Justification" spreadsheet, and the references to the appropriate tariff are in the table labeled "Tariff Channel Termination Rates." The relevant tariff pages are referenced in this table and attached in the zip file labeled "Tariff Rate Sheets."

V. ADDITIONAL RESPONSES TO THE INFORMATION REQUESTS FOR 92 FRNS

The questions in the information requests for the 92 additional FRNs are copied and pasted below in italics. The explanation is also provided below the question.

Eligible Services

- (1) Please provide an itemization, with supporting documentation, of all charges for eligible and ineligible items included in the monthly recurring charge (MRC). If the documentation does not specifically delineate the total costs of the equipment and services, please provide information that describes how the costs are allocated among all eligible and ineligible items (which requested funding for recurring service).**

The FRN Master Spreadsheet contains the requested itemization. The reference name for each supporting document is located in Column G, Eligible Services tab, of the FRN Master Spreadsheet. The relevant line item within each invoice is highlighted.

- (2) To the extent the FRN(s) include(s) ineligible costs, please explain in detail the nature of the ineligible equipment/services included and their respective charges and provide documentation identifying the charges associated with each.**

The response to this question is located in Column H, Eligible Services tab, of the FRN Master Spreadsheet. There are no ineligible items, such as equipment or non-telecommunications services, included in the FRNs.

- (3) All build-out and/or infrastructure costs must be cost-allocated and may not be included in the monthly recurring charge included in the FRN(s). Please describe all**

build-out and/or infrastructure costs or recovery costs associated with build-out and/or infrastructure included in the FRN(s). This description should include an itemization of those charges to the extent not already itemized in response to question (2) above.

The response to this question is located in Column I, Eligible Services tab, of the FRN Master Spreadsheet. There are no build-out and/or infrastructure costs or recovery costs included in the monthly recurring charge ("MRC") in the FRN.

Urban Rates

(1) Please explain how an urban rate was derived for the FRN(s).

The response to this question is located in Columns G, Urban Rate Info tab, of the FRN Master Spreadsheet. GCI derived the urban rates used for the FRNs from its published rate table for MPLS service in Anchorage ("Anchorage MPLS Rate Table").

(2) Please provide documentation to support this urban rate, including, but not limited to, documentation that supports that the urban rate for the requested service is "no higher than the highest tariffed or publicly-available rate charged to a commercial customer for a functionally similar service" in any city with a population of 50,000 or more in that state." Please include in your explanation how the HCP's request for service is functionally similar to the service used for purposes of this comparison.

The response to this question is located in Columns H, Urban Rate Info tab, of the FRN Master Spreadsheet. The information below further explains the response applicable to each FRN.

GCI publishes an Anchorage MPLS Rate Table on its website. This table, with prices valid July 1, 2017, is available at this link:
<https://static1.squarespace.com/static/56aa496dd82d5e1fa024d21f/t/58ee784b29687fbef7988018/1492023372766/Anchorage+MPLS+Urban+Rate+Table+2017-07-01.pdf>.

Anchorage is the largest city in Alaska, with a population of approximately 300,000. GCI uses the Anchorage MPLS Rate Table to determine rates charged to commercial customers. The MPLS service in the Anchorage MPLS Rate Table is the same service included the FRNs and, therefore, is functionally equivalent. The urban rate for each FRN is listed in Column K in FRN spreadsheet. The urban rate for each FRN is equal to or lower than the rates in the Anchorage MPLS Rate Table.

Rural Rate

(1) The rural rate must be determined using one of the following three methods below. Please identify which method you used to determine your rural rate and provide an explanation as to how it was calculated. Note, pursuant to FCC rules, you are

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required to select (a), unless the service provider is not providing identical or similar services.

- a. The rural rate shall be the average of the rates actually being charged to commercial customers, other than HCPs, for identical or similar services provided by the service provider providing the service in the rural area in which the HCP is located. The rates included in this average shall be for “services provided over the same distance” as the eligible service. The rates averaged to calculate the rural rate must not include any rates reduced by universal service support mechanisms. If you used this method, please proceed to Question (2). If you did not use this method, please proceed to (b).**

GCI determines the rural rate using the methodology described herein.

- (2) If you selected (a) as your answer to Question (1), please explain how the monthly rural rate represents “the average of the rates actually being charged to commercial customers, other than health care providers, for identical or similar services provided by the service provider in the rural area in which the HCP is located.” This should include, but not be limited to, an explanation of the following:**

- The specific geographic region (e.g., county, Census tract) used to determine the rural rate and why this particular geographic region was used, including an explanation as to how you identified this particular region and the characteristics you used to identify it;**

The response to this question is located in Columns E, Rural Rate Info tab, of the FRN Master Spreadsheet, and is explained in detail above.

- How the rural rate reflects the average of the rates actually being charged to commercial customers for identical or similar services, other than HCPs, by the service provider in the rural area in which the HCP is located. Note, quoted rates (e.g., a rate quoted by the service provider that was merely an offered price, but was not a quote that was accepted and therefore was not under contract) will not be accepted.**

The response to this question is located in the GCI Communication Corp. Tab of the FRN Master Spreadsheet and is explained in detail above and in supporting documentation.

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* * * * *

The information contained in this submission provides sufficient justification to begin releasing funding commitment letters. If USAC continues to question certain funding requests, it should not hold up the funding of rates that have been fully and indisputably justified.

Should you have further questions or require additional explanation or documentation, please contact me immediately so that I can provide further assistance to resolve this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Bagg".

Jennifer P. Bagg
Counsel to GCI Communication Corp

Master FRN Justification Spreadsheet Redacted in Entirety

Master FRN Justification Spreadsheet Key Redacted in Entirety

TERRA-Satellite-Terrestrial Comparables Redacted in Entirety

Local Loop Justification Redacted in Entirety

TERRA ROR Model Redacted in Entirety

Rate of Return Analysis of GCI's TERRA Network

PREPARED FOR

GCI Communication Corp.

PREPARED BY

William P. Zarakas

Agustin J. Ros

Nicholas E. Powers

March 30, 2018

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This report was prepared for the GCI Communication Corp. All results and any errors are the responsibility of the authors and do not represent the opinion of The Brattle Group or its clients.

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I. Introduction and Study Objective

GCI Communication Corp. (GCI) asked The Brattle Group to review and opine on a rate of return study of GCI's TERRA network (ROR Study) that was prepared by GCI staff. Specifically, we were asked to assess: 1) whether the methodology underlying GCI's ROR Study is consistent with regulatory costing theory and practice and provides reliable indicators of TERRA profits; and 2) whether the TERRA prices charged to GCI's rural healthcare provider customers are cost-justified (i.e., are not priced in a way that cross-subsidizes the prices charged to other TERRA customers).

TERRA (Terrestrial for Every Rural Region in Alaska) is a middle mile hybrid fiber-microwave terrestrial network that provides broadband telecommunications transport and increased Internet capabilities to customers in ■ villages in rural Alaska, all located west of the Cook Inlet and on the Alaska mainland. While extensive in size, TERRA does not serve all of rural Alaska. Middle mile functionality is provided mainly by satellites in the other (non-TERRA served) areas of rural Alaska. Outside of the area served by TERRA, primarily along Alaska's road system and adjacent to undersea fibers connecting Alaska to the lower 48 states, there is also middle mile service through other (smaller) GCI terrestrial networks.

A "middle mile" broadband telecommunications network is a portion of an overall telecommunications network that connects customers to the Internet, and is distinct from the "last mile," which connects to the end use customers (e.g., via a local loop). Additional transport to connect broadband traffic in Alaska to an Internet peering site in the lower 48 states is also separate from the scope of a middle mile network, as discussed here. GCI provides some TERRA customers with services beyond those associated with its middle mile network (e.g., last mile connectivity). However, only those costs and revenues associated with TERRA are included in GCI's TERRA rate of return analysis.

GCI has segmented the end-user customers that receive services over TERRA into three groups: rural health care providers; schools and libraries; and the mass market residential and other customers that receive their full scope of telecommunications services (e.g., wireless communications, cable modem service) from GCI. GCI is the TERRA customer in this latter case, as it purchases TERRA capacity to provide end-user service to individual mass market customers, which contract with GCI for end-user services, not the various network components

required to supply the service. All TERRA customers—including GCI—are charged for services based on GCI’s TERRA Ethernet Pricing Tables, with different rates charged based on speed (in megabits per second, or Mbps) and contract duration (i.e. term).¹ Customers are charged on a per Mbps per month basis.

We understand that one use of this rate of return analysis is to inform the Federal Communications Commission (FCC) about the returns realized by GCI from operations over its TERRA network and, also, about the cost basis of the various TERRA rates for services. The Telecommunications Act of 1996 mandated that telecommunications carriers provide telecommunications services for health care purposes to rural public or non-profit healthcare providers (HCPs) at rates that are “reasonably comparable” to rates in urban areas and entitled the telecommunications carriers to the difference between the rural and urban rates.² In response, the FCC created the Rural Health Care (RHC) program, which provides funding to subsidize the cost of internet and telecommunications services for eligible applicants.³ Rural HCPs are the beneficiaries of RHC program funds, which are used to offset the costs of internet and telecommunications services from carriers such as GCI. It is in this context that GCI developed this study as evidence that the telecommunication services that the RHC program funds are applied to are cost-based; that is, that those rates are reasonable and are not used to cross-subsidize other (typically, more competitive) services offered by carriers or contribute to excessive carrier profits. We understand that, under 47 C.F.R. § 54.607(b), a cost study is one method by which a telecommunications carrier may justify the rural rates used to determine support provided under the RHC program.

¹ The current rates are posted to https://www.gci.com/-/media/files/gci/regulatory/gci_terra_posting_effective_070117.pdf.

² 47 U.S.C. § 254(h)(1)(A). The FCC’s RHC program provides up to \$400 million in annual funding, a portion of which goes to rural healthcare providers that receive middle mile service over TERRA.

³ The FCC’s RHC program consists of two subprograms: 1) the Telecommunications Program provides reduced rates to rural HCPs for telecommunications services, including broadband telecommunications services, related to the use of telemedicine and telehealth; and 2) the Healthcare Connect Fund (HCF) provides supports (via a discount mechanism) for broadband connectivity and broadband networks for eligible HCPs.

We based our analysis of TERRA’s rate of return⁴ and pricing upon data (concerning TERRA-related costs and revenues) and calculations (of the TERRA rate of return) provided to us by GCI.⁵ We relied on GCI to compile its cost and revenue data and apply cost allocation procedures in an appropriate and accurate manner; we did not audit these data and did not examine GCI accounting systems or source reports. However, we did review the application of these data, including the descriptions of the cost allocation methods, and the rate of return methodology employed by GCI. Accordingly, in this regard we are able to opine on the appropriateness of GCI’s rate of return calculations.

We provide our own economic analysis to answer GCI’s questions concerning whether or not GCI’s TERRA prices are cost justified. Specifically, we used GCI’s cost data and information concerning TERRA capacity, combined with our understanding of and experience in applying economic theory and costing concepts, to estimate TERRA long-run marginal costs – which is a well-established economic metric in testing for cross-subsidization.

II. Rate of Return and Cost of Service Analyses

Rate of return and cost of service analyses are two primary methods used to assess the appropriateness and cost basis of rates charged for services provided, notably, by utilities and telecommunications carriers. Rate of return analysis measures the ratio of a carrier’s realized (or projected) net income to its related net invested capital. Implementing a rate of return requires calculating a carrier’s “revenue requirement,” or how much revenue has been (or will be) realized to cover its costs in order to remain a financially viable entity. The costs included under revenue requirements include expenses associated with operations and maintenance, taxes, and various corporate and administrative costs, as well as the opportunity cost associated with the capital invested in the telecommunications infrastructure. Rate of return analysis, thus, provides

⁴ We use the shorthand “TERRA rate of return” in this report. More precisely, GCI’s TERRA rate of return analysis reflects GCI’s investment in the TERRA network. A portion of funding of the TERRA network came from federal grants. GCI based its TERRA rate of return analysis upon its own investment in TERRA. Specifically, non-GCI funded capital (i.e., funding through grants) was excluded from the calculation of Total Capital. Likewise, GCI adjusted Depreciation to be in line with GCI-funded TERRA capital.

⁵ GCI provided cost and demand data and calculation for 2014 through 2017 on an actual basis.

an indication of whether a carrier's earnings are excessive by comparing its realized (or projected) rate of return to the level authorized by regulators.

Cost of service analysis deals with the distribution of a carrier's costs among the various classes of services and customers, and is thus related to rate of return analysis. "Cost" has a range of definitions in economics, and the scope of a cost of service study therefore depends upon the specific type of cost being studied. Two types of cost of service studies have been of particular interest to economists and, historically, to the FCC.

Embedded cost service studies, as the name implies, deal with the distribution of a carrier's entire revenue requirement (which reflects prudent levels of expenses and capital investment, as well as the authorized rate of return on invested capital) among the various classes of services and customers. Some costs can be directly assigned to a customer and/or service category; e.g., costs of equipment or facilities that are used exclusively to provide service to a specific customer class. Other cost areas do not so easily lend themselves to direct assignment, and need to be allocated based on principles of cost causation.⁶ Rates for services (as well as rates differentiated for customer class and geography) can then be set based on these cost data in a way that "fairly" reflects the degree to which these rate classes contributed to the carrier's overall cost of providing service. A rate of return analysis based on actual costs and realized revenues, then, informs whether rates (that were implemented based on a cost of service study) produced revenues sufficient to yield the authorized level of return, or whether they were above or below such a level.

Embedded cost of service analysis does little to inform whether one rate class is cross-subsidizing another. This question can be answered through conduct of a **marginal or incremental cost of service** analysis, which estimates how the total cost of providing a product or service changes as output (for that product or service) changes by a small amount, holding constant the level of

⁶ This is not uncommon when dealing with network industries, in which common facilities are used to provide a broad range of services to materially different classes of customers. For example, foundational facilities may be allocated to customer classes based on usage levels.

output of all remaining services.⁷ It is well understood in economics that a product or service is being cross subsidized when its incremental revenues are insufficient to cover its incremental costs.

Embedded cost of service studies are particularly applicable when determining rates for a diverse set of services, customers and geographies, and when the objective is to recover a regulator-permitted revenue requirement. State regulatory commissions routinely use cost of service studies in setting rates for electric and gas utilities, and previously used such studies in setting rates for services provided by incumbent local exchange carriers (ILECs) prior to the onset of greater competition in that market and the subsequent relaxation of telecom regulation at the state level. Marginal cost of service studies are also used in these settings, however they also provide valuable information for use in anti-trust investigations concerning cross-subsidies and predatory pricing.

The TERRA network provides a single type of service: middle mile broadband transport, albeit with differing levels of service quality, which differs considerably from the relatively broad scope of services and customer classes that are provided by ILECs and electric and gas utilities. All TERRA broadband transport services utilize a common set of capacity. As such, GCI did not conduct or use a cost of service study – embedded or marginal – as the basis for setting specific rates. However, GCI has segmented its TERRA middle mile service into service quality levels and rate categories based on the combination of bandwidth speed (in Mbps) and contract term (in years), using “rule of thumb” logic as the basis for any price differentiation.

We considered additional methods to test for cross-subsidization in the absence of a marginal cost of service study. It is widely accepted that “when the firm earns no more and no less than the competitive rate of return, if each of the firm’s prices is above its average-incremental cost, then each of those prices *must* be below its stand-alone cost, and vice versa.”⁸ Thus, GCI’s rates will be cost-based if either 1) GCI’s TERRA prices are above average-incremental costs or 2)

⁷ Marginal cost studies tend to concern themselves with very small changes in output, while incremental cost studies are more general with respect to the size of change in output.

⁸ Baumol, William J. and Sidak, J. Gregory (1994). *Toward Competition In Local Telephony*. Cambridge, MA and Washington, D.C.: The MIT Press and the American Enterprise Institute for Public Policy Research.

A carrier's revenue requirement takes as its starting point a calculation of the costs associated with delivering the services under study. The annual costs associated with the TERRA network (other than the taxes and the rate of return on the TERRA network which are introduced in Section V, Rate of Return Analysis) are summarized in Table 1.

[illegible]

⁹ In the Matter of Connect America Fund, ETC Annual Report Certifications, Developing a Unified Inter-carrier Compensation Regime, WC Docket No.10-90, WC Docket No. 14-58, WC Docket No. 01-92, Report and Order, Order and Order on Reconsideration, And Further Notice of Proposed Rulemaking, March 23, 2016. In this study, we have assumed these levels to be a permissible level of return. However, these levels of return were established for incumbent local exchange carrier operations, which can have the benefit of NECA pooling to reduce risk, not interexchange middle mile services in highly risky environments such as Alaska. Accordingly, it may be appropriate to use a higher rate of return than those we have used here.

The table indicates that TERRA costs [REDACTED]. GCI explained that this increase is related to the expansion of the TERRA network and increase in customers connected.¹⁰

The table shows five cost areas, two of which primarily reflect direct costs uniquely incurred by the TERRA network:

- Depreciation expenses mainly reflect that associated with TERRA network assets. In addition, a small portion of the depreciation expenses included in the TERRA ROR Study (about [REDACTED] represents an allocation of GCI common costs.
- TERRA specific maintenance costs include expenses associated with use of a helicopter and the lease costs for satellite transponders that are used as backup in case of a temporary outage on the TERRA network.

The costs of the remaining three cost areas are allocated (either in whole or in part) from GCI cost areas that serve more than TERRA alone.

- Managed Broadband (MBB) Expenses include the costs of management, sales and administrative personnel and related benefits that directly serve GCI's rural healthcare, school and library customers. Some but not all of these customers have middle mile services provided over the TERRA network. Middle mile services for rural healthcare, school and library customers not located within the TERRA network footprint are provided by satellite or GCI's non-TERRA terrestrial network. [REDACTED]

.¹¹

- Rural Maintenance Costs include operations, maintenance and engineering costs incurred in support of rural networks (i.e., TERRA, satellite, and GCI's other terrestrial networks). GCI allocated these costs to TERRA based on input from the involved subject matter experts and department heads, who provided percentage estimates of time spent on TERRA related operations, maintenance and engineering. [REDACTED]

¹⁰ The initial build-out of TERRA was in 2011 (Southwest Middle Mile Network). The network then expanded through subsequent construction phases in 2012 through 2017 (Northwest Phases 1, 2 and 3; and the Yukon construction phase; and the completion of the TERRA "ring," connecting the Yukon and Northwest portions of the network).

¹¹ [REDACTED] We show calculations for 2017 because it is the most recently completed year of actual data.

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allocations to TERRA (i.e., the equivalent of a direct cost). An additional [REDACTED] of total Rural Maintenance costs were allocated to TERRA.¹²

- Sales, General and Administrative (SG&A) covers the full range of GCI's corporate functions, including: IT; corporate communications; product management; cost and capital management; accounting; legal and regulatory; human resources; and, other general and administrative functions. SG&A is a comparatively large cost area, totaling about [REDACTED] for GCI overall in 2017. A sizable portion of this amount was directly assigned to various GCI business segments, while [REDACTED] are common costs that are then allocated. TERRA was allocated roughly [REDACTED] of this amount, based on TERRA's percentage of total GCI net plant.¹³

A more detailed derivation of these TERRA costs for 2017 is shown below.

Table 2: TERRA Expenses (millions \$), 2017

Cost Category	Breakdown of TERRA Costs			
	Direct TERRA Cost + Common Cost (Before Allocation)	>>	Cost Allocated to TERRA	= Direct Cost + Allocated Cost
Depreciation	[REDACTED]			
TERRA Specific Maintenance Costs	[REDACTED]			
Managed Broadband Expenses	[REDACTED]			
Rural Maintenance Costs	[REDACTED]			
SG&A	[REDACTED]			
Total	[REDACTED]			

Source: GCI TERRA Rate of Return Analysis.

Review of TERRA's 2017 costs indicates that about [REDACTED] of TERRA costs are directly attributable to TERRA operations.¹⁴ These include the depreciation expenses associated with TERRA-specific

¹² GCI's total direct Rural Maintenance Group costs were roughly [REDACTED]

¹³ The "net plant" allocation basis is also referred to as the purchased plant, property and equipment, or "PPE" allocator.

¹⁴ [REDACTED]

Continued on next page

The remainder of the 2017 TERRA costs was allocated from cost pools that reflect GCI expenses, ranging from engineering and maintenance to general administration and sales, which are jointly incurred by two or more GCI services.

IV. TERRA Rates and Revenues

TERRA rates are determined from two TERRA Ethernet Pricing Tables,¹⁵ one covering TERRA services between Anchorage and a regional center (Pricing Table 1), and another pricing table covering TERRA services between all other locations (Pricing Table 2). Prices are shown on a per Mbps per month basis separately for a Hub Port component and an Edge Port component. The tables segment prices based on broadband speed (7 categories: 1-100 Mbps; 101-150 Mbps; 151-200 Mbps; 201-250 Mbps; 251-300 Mbps; 301-400 Mbps; and 400+ Mbps) and contract term (5 categories: 1, 3, 5, 10, and 25 years). In addition, some customers (mainly certain schools and libraries) purchase Dedicated Internet Access Service (DIAS), which is a lower service level of broadband transport than Ethernet service, over TERRA.

TERRA prices are lower (on a per Mbps basis) as bandwidth demand and as contract term increase. At the extreme points, the sum of the Hub Port and Edge Port prices (within the pricing table applicable to locations between Anchorage and a regional center)¹⁶ is \$7,348 per Mbps per month for services with an aggregate bandwidth at 100 Mbps and less with contracts limited to one year, and is \$2,052 per Mbps for services with an aggregate bandwidth at 400 Mbps and higher with contracts locked in for 25 years.¹⁷ That is, TERRA services for the combination of high aggregated bandwidth and long-term contracts are roughly 28% of the low

Continued from previous page

return on investment of \$25.3 million, both shown in Table 5) divided by total costs of \$122.0 equals 50.1%.

¹⁵ TERRA Product Descriptions & Pricing, https://www.gci.com/-/media/files/gci/regulatory/gci_terra_posting_effective_070117.pdf

¹⁶ That is, TERRA Ethernet Pricing Table 1.

¹⁷ \$6,610 + \$778 = \$7,348; \$1,836 + \$216 = \$2,052. TERRA Ethernet services are also offered on a month-to-month basis without volume or term discounts at a price of \$8,208 per Mbps (\$7,344 + \$864).

aggregated bandwidth services under a one year contract. Under these arrangements, a 50 Mbps service under a one year contract would cost \$367,400 per month,¹⁸ and a 500 Mbps service under a 25 year contract would cost \$1,026,000 per month,¹⁹ or about 2.8 times as much as the slower speed, shorter term service.

GCI has represented its “rule of thumb” logic as the basis for price declinations following increases in Mbps demand and increased contract terms. Setting lower prices for high bandwidth and long term contract services are quite common in the telecommunications industry, and also in other industries characterized by large fixed investments. Locking in longer-term contracts lowers the risk associated with stranding assets if demand should change in the future, and thereby the total cost of providing service, when risk is weighed in. Also, providing customers with comparatively high demand (bandwidth) with relatively lower unit prices (per Mbps prices) is also a standard practice, as it reflects the lower per-unit costs for larger demand due to economies of scale, when those exist.

[REDACTED]

[REDACTED] The bandwidth requirements for an individual location may be modest (e.g., 3-10 Mbps), however GCI determines TERRA pricing based on the sum of the Mbps services at each location within a customer. In this way, rural HCP customers are able to receive lower prices per Mbps than if pricing was based on the bandwidth needs of each individual location. The aggregate bandwidth service levels for GCI’s rural healthcare provider customers (that receive TERRA middle mile service) range from less than [REDACTED].²⁰

¹⁸ \$7,348 per Mbps x 50 Mbps = \$367,400.

¹⁹ \$2,052 per Mbps x 500 Mbps = \$1,026,000.

²⁰

[REDACTED]

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Invoiced revenues to customer are the basis for the revenue amounts provided. As we understand it, these invoice amounts are determined by applying the customer's Mbps demands to the TERRA pricing lists for Ethernet and DIAS services.

Annual TERRA revenues for the three TERRA customer classes are shown in Table 3 below.

Table 3: Annual TERRA Realized Revenues By Customer Class

Customer Class	2014		2015		2016		2017	
	(\$M)	(%)	(\$M)	(%)	(\$M)	(%)	(\$M)	(%)
Rural Healthcare								
Schools & Libraries								
GCI Purchases for Wireless and Retail Services								
Total								

Source: GCI TERRA Rate of Return Analysis.

The revenues shown above for GCI's rural healthcare provider and school and library customers are based on the actual amounts invoiced for TERRA services. The revenues shown for GCI are calculated based on the TERRA Ethernet Pricing Table 2 pricing point for services at the 400+ Mbps service level under a 25 year contract. GCI indicated that it uses TERRA in its provision of end-user services to numerous customers, and that collecting the total costs and revenues for end user services, for which TERRA is only one input, would have been extremely burdensome and difficult to then assign an appropriate amount of end user revenues to TERRA. GCI further represented that it uses 500 Mbps of services over the TERRA network. Thus, to provide a workable approach to attribute revenues from these services to TERRA, GCI applied the TERRA Ethernet Pricing Table 2 pricing point for services at the 400+ Mbps level under a 25 year contract, which is the same rate at which a competitor could purchase this capacity for use in providing end user services.²¹

²¹ Under TERRA Ethernet Pricing Table 2, Hub Port charges are \$240 per Mbps per month for 400+ Mbps service / 25 year contract term, and Edge Port charges are \$2,040 per Mbps per month for 400+ Mbps service / 25 year contract term. The sum of these (\$240 + \$2,040 = 2,280) applied to 500 Mbps equals \$1.14 million, for 12 months equals \$13.68 million per year.

V. Rate of Return Analysis

GCI used the TERRA cost and revenue data (summarized above) in combination with tax considerations in order to calculate annual TERRA rates of return. The calculations of these TERRA returns are provided in Table 4.

Table 4: Annual TERRA Rate of Return Analysis (\$M)

		2014	2015	2016	2017
Revenue	[A]				
Expenses	[B]				
Net Income Before Taxes and Interest	[C]				
Tax Rate	[D]				
Taxes	[E]				
Interest	[F]				
Net Income After Taxes and Interest	[G]				
Net Capital	[H]				
Working Capital	[I]				
Total Capital	[J]				
Allowable Rate of Return	[K]				
Allowable Net Income	[L]				
Over-Earned Amount	[M]				
Actual Rate of Return	[N]				

Source: GCI TERRA Rate of Return Analysis.

Notes: All numbers are in millions of dollars unless otherwise stated.

[A], [B], [D], [F], [H], [I], & [K]: Provided by GCI.

[C] = [A] + [B]

[E] = [C] x [D]

[G] = [C] - [E] - [F]

[J] = [H] + [I]

[L] = [J] x [K]

[M] = [G] - [L]

[N] = [G] / [J]

The table indicates that the actual TERRA rate of return ranged from

The upper portion of Table 4 calculates TERRA's net income after taxes and interest. For 2017, TERRA revenues (realized from its rural health care provider and schools and library customers, and from GCI) totaled [REDACTED]

The second panel of Table 4 presents the calculation of the TERRA rate of return. As indicated in the table, GCI earned a rate of return of [REDACTED]

VI. Cost-Based Rate Analysis

Monopoly profits can arise only if prices in the aggregate are set significantly above the competitive level, which in competitive markets is the marginal cost of production. TERRA's rate of return is (for 2017) below the FCC's allowable rate, which is a proxy for the competitive market level (i.e., indicative of zero monopoly profits).²³ This finding demonstrates that TERRA's prices are efficient in the aggregate.²⁴ With this in mind, we can turn to the question of whether TERRA's prices are cost-justified. That is, is there a way to assure that none of GCI's customer classes (notably, GCI's rural HCP customers) are paying "too much," thereby subsidizing another customer class that is paying "too little"?

²² See Rate of Return Represcription Order, *op. cit.*

²³ GCI also provides other telecommunications services, which are subject to competition sufficient to prevent it from earning long-run monopoly profits. For wireline voice products and services, GCI is a non-dominant provider and a state-certified competitive local exchange carrier.

²⁴ It can also be concluded that, for unregulated, profit-maximizing firms, the absence of monopoly profits in itself means that prices, in the aggregate, are efficient *and* that there is no cross-subsidization among customers, *see* William J. Baumol, *Superfairness* Chapter 6, MIT Press.1986.

In the absence of specific marginal cost studies, we rely on more general estimates of TERRA's incremental and standalone costs which, as discussed earlier, provide indications of (the absence of) cross-subsidization. Recall that, assuming an overall competitive rate of return, it is understood that there is no evidence of cross-subsidy if each of a firm's prices is above its average-incremental cost,²⁵ or, equivalently, if each of that firm's prices is below its stand-alone cost. Measures of incremental costs are the forward-looking costs that can be *directly* assigned to specific services or network elements and that do not include costs that are common among all the firm's services or shared among a subset of services.

We approximated the long run marginal cost (LRMC) for TERRA by calculating its unit "capacity cost." The capacity cost concept spreads an investment's capital costs (which are frequently incurred at an initial point in time) across the capacity of plant, and relies on the divisibility of time to make the costs of lumpy investments appear divisible. Capacity costs are typically measured as the annualized capital-related costs in a network (or portion thereof) plus any direct costs associated with operations and maintenance; unit capacity costs are these costs divided by network capacity.²⁶ Unit capacity costs thus provide a reasonable proxy for the LRMC for a telecommunications network.

We included all direct TERRA costs (depreciation, direct operations and maintenance costs, taxes and return on investment) in our calculation of capacity costs as a proxy for TERRA's LRMC.²⁷

²⁵ In competitive markets (i.e., where no firm has monopoly power and there are no other market failures), market forces ensure that prices are efficiently set so that no customer is paying prices that are either too high or low. That is, the forces of competition result in prices being set so as to equal the marginal cost of production; any price lower than the marginal cost of production means that the costs to produce the product is higher than the marginal value consumers receive from the service and implies that the service cannot and should not be produced in the long run as the firm cannot profitably produce it without the firm receiving some type of subsidy. Furthermore, the product should not be produced because customers do not place a high-enough value on it, vis-à-vis the costs of production.

²⁶ See, Richard Emerson, "Theoretical Foundations of Network Costs," in NRRI (1991) *Marginal Costing Techniques in Telecommunications*. Capacity cost theory has been used extensively in telecommunications marginal costing practice and was the foundation of the marginal cost models used by Bellcore, including its SCIS models.

²⁷ Technically, marginal costs are a forward-looking concept, not a historical one. However, the TERRA network is a sufficiently recently-deployed network that utilizes modern, efficient Ethernet

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The shared or common costs of GCI and TERRA are not part of the LRMC and therefore are not part of an economically-appropriate price floor for purposes of determining whether a service is being cross-subsidized.

Our calculation of the unit capacity costs (used as a proxy for LRMC) for the TERRA network is shown in Table 5.

Table 5: Approximation of TERRA's LRMC

		2014	2015	2016	2017
Depreciation of TERRA Assets (\$M)	[A]				
Direct Operations & Maintenance Costs (\$M)	[B]				
Taxes (\$M)	[C]				
Allowable Return on Investment (\$M)	[D]				
Total Direct Expenses (\$M)	[E]				
TERRA Capacity (Mbps)	[F]				
TERRA Annual Capacity (Mbps x Months)	[G]				
Unit Capacity Cost (\$ per Mbps per Month)	[H]				

Sources and Notes:

[A] - [D]: GCI TERRA Rate of Return Analysis.

[B] Consists of those Rural Maintenance Group cost accounts that are 100% attributed to TERRA, plus the TERRA-specific transponder and helicopter costs.

[E] = [A] + [B] + [C] + [D]

[F]: GCI states that the capacity of TERRA is , which is equal to

[G] = [F] x 12

[H] = [E] x 10⁶ / [G]

The table shows the derivation of TERRA unit capacity costs (i.e., per Mbps per month) by dividing total TERRA capacity costs (labelled total direct expenses) by TERRA capacity (in Mbps). For 2017, direct TERRA expenses were . When divided by TERRA

Continued from previous page

technology. While a forward-looking study may well have resulted in some cost inputs being higher than historically-incurred—such as labor and material expenses—other cost inputs may be cheaper on a going-forward basis—such as the electronics, equipment and capacity associated with the Ethernet network. We thus believe that for purposes of this analysis, the capacity costs of GCI's actual TERRA network is a reasonable approximation to LRMC.

capacity-months (i.e., the product of the TERRA network capacity and the months in a year),²⁸ the table indicates that the TERRA LRM (approximated by its unit capacity cost) is [REDACTED] per Mbps-month for 2017. The TERRA LRM was lower in prior years because the TERRA direct expenses were lower in those years.

In order to determine whether any TERRA customer is being subsidized (i.e., paying prices that are below LRM), we compared TERRA's LRM on a per Mbps-month basis to the average price per Mbps-month paid by GCI, a comparatively low price, reflecting the combination of high bandwidth and long contract duration. We also compared the TERRA LRM to the average price per Mbps-month paid by GCI's rural healthcare provider customers which are served over the TERRA network.

- GCI, on behalf of its end-use customers, pays an average price of [REDACTED] per Mbps per month.²⁹
- GCI's rural healthcare provider customers (that receive middle mile service over TERRA) pay an average price of [REDACTED] per Mbps per month.³⁰

Based on the comparison of the above prices paid for TERRA and the LRM calculated in Table 5 ([REDACTED] per Mbps per month), we find that no TERRA customer is paying a price that is below its LRM. Thus, the above analysis indicates that current TERRA prices are cost-based (i.e., no customer is receiving a subsidy).

We have not developed an estimate of the cost of providing service to a single customer class or grouping of TERRA services on a stand-alone basis, however it is not difficult to provide an overall indication of the magnitude of stand-alone costs.³¹ As a terrestrial service, connectivity

²⁸ GCI's Network Services group estimated that TERRA network capacity is equal to 6 Gbps.

²⁹ GCI represents that it pays [REDACTED] per Mbps per month for use of the TERRA network, which corresponds to the 25-year rate for 400+ Mbps shown in the TERRA Ethernet Pricing Table 2.

³⁰ The [REDACTED] calculation reflects the weighted average revenue per Mbps per month as paid by rural health care providers for unbundled service, as of March 2018, based on data provided by GCI.

³¹ For reasons mentioned above, a stand-alone study is not required in order to conclude that no customer is paying above the TERRA stand-alone cost. As indicated earlier, the economic literature establishes that "when the firm earns no more and no less than the competitive rate of return, if each of the firm's prices is above its average-incremental cost, then each of those prices *must* be below its

requires that network points be interconnected. Therefore the stand-alone cost of serving a single customer or even a group of customers would be close to the cost of building and operating all or a portion of the TERRA network. The high cost of hypothetical stand-alone service is understandable given the nature of middle mile services. Local loops, for example, are stand-alone facilities and can be easily built and connected and disconnected from the network. In contrast, middle mile facilities are networks; their economic feasibility requires that multiple customers are connected and use and pay for these facilities.

The logic behind the stand-alone test also illustrates the gap in cost recovery that follows from pricing based on LRMC. As discussed above, if all customer classes are paying LRMC, there is no risk of cross-subsidization. However, pricing above LRMC is necessary in order to ensure that GCI receives a contribution to its joint and common costs. All customers are better off when mutual contributions to common cost are made because common costs must be recovered in order for the network provider to remain in business. That is, if a customer who is paying more than its incremental cost (i.e., and is thus making a contribution to common costs) were to disconnect from the network (thereby ending its contribution to common costs), then the burden of paying off the common costs would fall on the remaining customers (through higher prices). For the case at hand, the rural HCP customers that receive middle mile service over TERRA, as well as GCI itself, are making contributions to the common costs of the network, and each customer would have to pay higher prices if the other were to disconnect from the TERRA network.

VII. Conclusion

We have reviewed the rate of return study of GCI's TERRA network that was prepared by GCI staff. Specifically, we assessed: 1) whether the methodology underlying GCI's ROR Study is consistent with regulatory costing theory and practice and provides reliable indicators of TERRA

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stand-alone cost, and vice versa.” The analyses above indicate that: 1) no TERRA customer is paying prices that are below LRMC; and, 2) that the TERRA network is earning a competitive return on capital. Thus, it is reasonable to conclude that no TERRA customer is paying prices that are above the stand-alone cost, and therefore not providing a subsidy to any customer or customer group.

profits; and 2) whether the TERRA prices charged to GCI's rural healthcare provider customers are cost-justified (i.e., are not priced in a way that cross-subsidizes the prices charged to other TERRA customers).

We found that the TERRA rate of return study was prepared in a manner that is consistent with good regulatory costing practice and reflects the return earned by the TERRA network.³² Our review and analysis of the data and calculations included in GCI's TERRA rate of return study provides a strong indication that TERRA has earned both below the FCC's allowed rate of return for the years 2014 through 2017. The TERRA rate of return analysis thus provides assurance that GCI is not currently earning monopoly profits on its TERRA network.

We used TERRA cost and capacity data to estimate the marginal cost for average middle mile service delivered over the TERRA network (i.e., on a \$ per Mbps-month basis). Comparing the prices paid by key customer classes – namely, GCI itself and the rural healthcare providers – to TERRA's marginal cost indicated that prices were well above marginal cost, dismissing any immediate concern about cross-subsidization among TERRA bandwidth / contract based service options. The difference between marginal cost and charged TERRA prices reflect contributions to GCI's common costs, an essential requirement to keep the TERRA network financially viable and an ongoing business. Price differences within the TERRA pricing tables (i.e., based on bandwidth size/speed and contract term) are based on GCI's business judgement and follow general industry practices.

³² Determining a rate of return for any particular service of a multiproduct firm like GCI depends on the allocation methodology used to assign the non-direct (common) costs to the different services. As indicated earlier, we did not conduct a comprehensive review and/or audit of GCI's cost allocation practices and procedures. However, discussions with GCI indicate that the company applies a cost allocation methodology that is consistent with generally accepted regulatory costing practices.

Commercial Customer Invoices Redacted in Entirety

E-Rate Contracts Redacted in Entirety

FRN Invoices Redacted in Entirety



GCI TERRA-SW Product Descriptions & Pricing

GCI TERRA-SW Product Summary Matrix

Product	Retail	Wholesale	Metered	Bit Caps	Availability Guarantee	Latency	Jitter	Packet Loss	Throughput Guarantee	Over Subscription	Internet Access included
Private Line T-1 Fractional T-1	X	X	No	No	99.95%	70ms	Guarantee <20ms	Guarantee <.25%	Yes	None	No
Ethernet (Dedicated)	X	X	No	No	99.95%	70ms	Guarantee <20ms	Guarantee <.25%	Yes	None	No
Priority IP (Priority Portion)	X	X	No	No	99.95%	70ms	Guarantee <20ms	Guarantee <.25%	Yes	None	No
(DIAS Portion)	X	X	No	No	99.50%	100ms	Average <30ms	Average <1%	No	4x ²	Yes
DIAS	X	No	No	No	99.50%	100ms	Average <30ms	Average <1%	No	4x ³	Yes

² Supporting documentation found on Page

³ Supporting documentation found on Page

Private Line

Product Description

A time division multiplexed (TDM) service is that 100% dedicated bandwidth and is not oversubscribed. Private line service on TERRA-SW is only sold in 9.6 to T-1 increments. Customers have full symmetrical access to the configured capacity with a guaranteed availability of 99.95% or no greater than 1296 seconds of outage per month. Designed to provide point to point or point connectivity. Service is restored via satellite in the event that the TERRA terrestrial network becomes unavailable.

Terms & Conditions

1. Subject to TDM availability, GCI shall provide industry-standard T-1s between any two TERRA-SW locations.
2. GCI TERRA-SW T-1 rates are “postalized”. The same rate is charged for a T-1 between any two locations regardless of the distance between the locations.
3. Discounts shall be specific to the amount of capacity/term of service set forth in a contract or service order (i.e. no aggregation across contracts).
4. During the service term and subject to conditions in the contract, purchaser shall be entitled to reassign one or both locations of any purchased T-1.
5. Discounts are calculated by aggregating all T-1s covered by an individual contract and then applying the term and volume discount table set out below.
6. Minimum service period is one year.
7. Discount programs are offered individually and may not be combined. Discount programs may be subject to additional terms and conditions as indicated in their respective descriptions.
8. Contract Volume Discount Program (CVDP) – The CVDP is based on a single contract, no aggregation permitted. The CVDP discount may not be combined with the Annual Aggregate Business Volume Program or any other discounts.
9. Annual Aggregate Business Volume Program - The minimum service period is one month. Qualifying business volume is the annual aggregate business volume with GCI for all services in the immediate past calendar year as measured by total post-discount invoiced amount by GCI to customer. AABV discount cannot be combined with the CVDP or any other discount schedule.

Pricing Tables

GCI Standard T-1 Pricing & Discount Table

TERM >>	1 YEAR	3 YEAR	5 YEAR
1.544 MBPS	\$16,984	\$14,436	\$13,587
1.024 MBPS	\$10,336	\$8,786	\$8,269
768K	\$8,269	\$7,028	\$6,615
640K	\$6,891	\$5,857	\$5,513
512K	\$5,926	\$5,037	\$4,741
384K	\$4,823	\$4,100	\$3,859
340K	\$4,272	\$3,631	\$3,418
320K	\$4,134	\$3,514	\$3,308
256K	\$3,721	\$3,163	\$2,977
192K	\$3,170	\$2,694	\$2,536
128K	\$2,618	\$2,226	\$2,095
64K	\$1,516	\$1,289	\$1,213
56K	\$1,516	\$1,289	\$1,213
<56K	\$1,240	\$1,054	\$992

GCI Contract Volume Discount Program – CVDP

COMMITMENT	DISCOUNT
1-10 MBPS	0%
11-20 MBPS	5%
21-30 MBPS	15%
31+ MBPS	20%

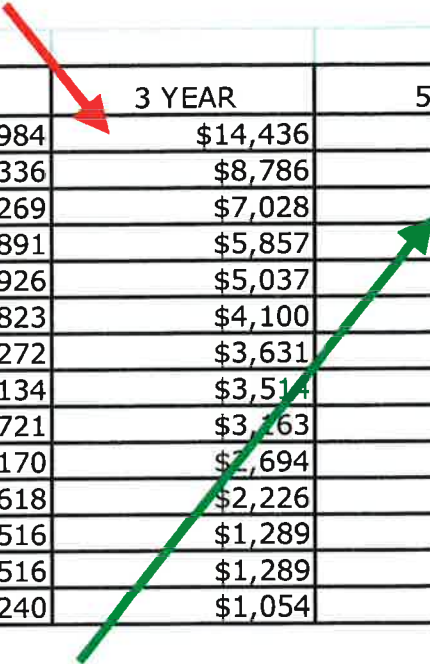
GCI Annual Aggregate Business Volume Program – AABV

COMMITMENT	AABV	DISCOUNT
VOLUME LEVEL 1	\$ 20,000,000	20%
VOLUME LEVEL 2	\$ 30,000,000	27%

MONTH TO MONTH	VOLUME LEVEL 1	VOLUME LEVEL 2
1.544 MBPS	\$13,587	\$12,398
768K	\$6,615	\$6,036
512K	\$4,741	\$4,326
256K	\$2,977	\$2,716
128K	\$2,095	\$1,911
64K	\$1,213	\$1,107
56K	\$1,213	\$1,107
9.6K	\$827	\$755

Pricing Examples

- Request for one (1) T-1 for a three-year term: **\$14,436 per month.**



TERM >>	1 YEAR	3 YEAR	5 YEAR
1.544 MBPS	\$16,984	\$14,436	\$13,587
1.024 MBPS	\$10,336	\$8,786	\$8,269
768K	\$8,269	\$7,028	\$6,615
640K	\$6,891	\$5,857	\$5,513
512K	\$5,926	\$5,037	\$4,741
384K	\$4,823	\$4,100	\$3,859
340K	\$4,272	\$3,631	\$3,418
320K	\$4,134	\$3,514	\$3,308
256K	\$3,721	\$3,263	\$2,977
192K	\$3,170	\$2,694	\$2,536
128K	\$2,618	\$2,226	\$2,095
64K	\$1,516	\$1,289	\$1,213
56K	\$1,516	\$1,289	\$1,213
<56K	\$1,240	\$1,054	\$992

- Request for one 768K circuit for a five-year term: **\$6,615 per month.**

GCI Contract Volume Discount Program – CVDP

COMMITMENT	DISCOUNT
1- 10 MBPS	0%
11- 20 MBPS	5%
21- 30 MBPS	15%
31+ MBPS	20%

- Based on a single contract totaling one of the above commitments an appropriate discount will be taken from the total contract value from the above table.
- 10 T-1s on the same contract for a 3-year term: $10 \times \$14,436 = \$144,360$ less 5% discount for achieving the 11-20 Mbps commitment volume or $\$144,360 \times .95 =$ **\$137,142 per month.**

GCI Annual Aggregate Business Volume Program – AABV

COMMITMENT	AABV	DISCOUNT
VOLUME LEVEL 1	\$ 20,000,000	20%
VOLUME LEVEL 2	\$ 30,000,000	27%

MONTH TO MONTH	VOLUME LEVEL 1	VOLUME LEVEL 2
1.544 MBPS	\$13,587	\$12,398
768K	\$6,615	\$6,036
512K	\$4,741	\$4,326
256K	\$2,977	\$2,716
128K	\$2,095	\$1,911
64K	\$1,213	\$1,107
56K	\$1,213	\$1,107
9.6K	\$827	\$755

- A carrier with an annual aggregate business volume in the prior year with GCI is entitled to the above discounts (20% Level 1, 27% Level 2). The above table represents the post-discount amount so no additional discount should be calculated.
- 1 T-1 for Volume Level 1 = 1 x \$13,587
- As minimum service period is one month no term discounts apply.

Ethernet

Product Description

An Ethernet-based IP service is that 100% dedicated bandwidth and is not oversubscribed. Customers have full symmetrical access to the configured capacity with a guaranteed availability of 99.95% or no greater than 1296 seconds of outage per month. Designed to provide point to point or point to multi point connectivity.

Priority Class Traffic Service Level

- Round trip latency not to exceed 70 milliseconds⁴
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
- Jitter not to exceed 20 milliseconds
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
 - Circuit Point A to Z
- Packet loss not to exceed .25%
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
 - Circuit Point A to Z
- Service is restored via satellite in the event that the TERRA terrestrial network becomes unavailable.

Terms & Conditions

1. Subject to TERRA-SW Ethernet availability GCI shall provide to customer non-contended, Layer 2 Ethernet service among TERRA-SW locations.
2. An Ethernet service network shall consist of one hub port at a single location and Edge Port(s) at one or more different locations.
3. Aggregate Ethernet hub capacity and aggregate Ethernet edge capacity each must be ordered in increments of one MBPS, although the capacity may be provisioned in increments of less than one MBPS at individual location(s).
4. The aggregate Ethernet capacity of the hub port in a service network shall not exceed the aggregate Ethernet capacity of the edge ports in a service network.
5. One or more service networks may be ordered under a single contract or service order.

⁴ Round trip delay will not exceed 700 milliseconds during times of satellite restoration.

6. During the service term and subject to any conditions in the contract or service order, customer shall be entitled to modify or eliminate such service networks and to create new networks.
7. Discounts shall be specific to the amount of capacity/term of service set forth in a contract or service order (i.e. no aggregation across contracts or service orders).
8. Discounts shall be calculated by:
 - a. Totaling all the hub capacity ordered under a single contract or service order and the applying the hub discount table set out below.
 - b. Totaling all the edge capacity ordered under a single contract or service order and the applying the edge discount table set out below.
9. Minimum service term is one year.

Pricing Tables

HUB DISCOUNT TABLE

		15%	20%	25%	60%	
HUB CAPACITY/TERM	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR	
1-10 MBPS	\$1,100	\$935	\$880	\$825	\$440	
11-20 MBPS	\$1,056	\$898	\$845	\$792	\$422	4%
21-30 MBPS	\$1,034	\$879	\$827	\$776	\$414	6%
31-40 MBPS	\$1,012	\$860	\$810	\$759	\$405	8%
41-100 MBPS	\$990	\$842	\$792	\$743	\$396	10%
101-200 MBPS	\$935	\$795	\$748	\$701	\$374	15%
201-300 MBPS	\$770	\$655	\$616	\$578	\$308	30%
300+ MBPS	\$550	\$468	\$440	\$413	\$220	50%

EDGE DISCOUNT TABLE

		15%	20%	25%	60%	
EDGE CAPACITY/TERM	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR	
1-10 MBPS	\$9,900	\$8,415	\$7,920	\$7,425	\$3,960	
11-20 MBPS	\$9,504	\$8,078	\$7,603	\$7,128	\$3,802	4%
21-30 MBPS	\$9,306	\$7,910	\$7,445	\$6,980	\$3,722	6%
31-40 MBPS	\$9,108	\$7,742	\$7,286	\$6,831	\$3,643	8%
41-100 MBPS	\$8,910	\$7,574	\$7,128	\$6,683	\$3,564	10%
101-200 MBPS	\$8,415	\$7,153	\$6,732	\$6,311	\$3,366	15%
201-300 MBPS	\$6,930	\$5,891	\$5,544	\$5,198	\$2,772	30%
300+ MBPS	\$4,950	\$4,208	\$3,960	\$3,713	\$1,980	50%

Pricing Examples

- A total of four, 5 Mbps Edge ports serving village locations, aggregating into a 20 Mbps hub port in Bethel, with a 20 Mbps connection between Bethel and Anchorage for a 3-year term of service:
 - Use 31-40 per Mbps Hub pricing for a 20 Mbps port in Bethel, and a 20 Mbps port in Anchorage:
 - 20 Mbps + 20 Mbps = 40 Mbps
 - 40 Mbps x \$860 = **\$34,400 per month**
 - Use 31-40 per Mbps Edge pricing for 5 Mbps ports in each of four villages, plus a 20 Mbps edge port to terminate the Anchorage to Bethel connection:
 - 5 Mbps x 4 villages = 20 Mbps + 20 Mbps edge port in Bethel = 40Mbps.
 - 40 Mbps x \$7,742 = **\$308,960 per month**
 - Total network (must be on a single contract) **\$343,360 per month**

HUB DISCOUNT TABLE

HUB CAPACITY/TERM	15%		20%		25%		60%	
	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR			
1-10 MBPS	\$1,100	\$835	\$880	\$825	\$440			
11-20 MBPS	\$1,056	\$798	\$845	\$792	\$422			4%
21-30 MBPS	\$1,034	\$779	\$827	\$776	\$414			6%
31-40 MBPS	\$1,012	\$760	\$810	\$759	\$405			8%
41-100 MBPS	\$990	\$742	\$792	\$743	\$396			10%
101-200 MBPS	\$935	\$705	\$748	\$701	\$374			15%
201-300 MBPS	\$770	\$655	\$616	\$578	\$308			30%
300+ MBPS	\$550	\$458	\$440	\$413	\$220			50%

EDGE DISCOUNT TABLE

EDGE CAPACITY/TERM	15%		20%		25%		60%	
	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR			
1-10 MBPS	\$9,900	\$8,435	\$7,920	\$7,425	\$3,960			
11-20 MBPS	\$9,504	\$8,072	\$7,603	\$7,128	\$3,802			4%
21-30 MBPS	\$9,306	\$7,910	\$7,445	\$6,980	\$3,722			6%
31-40 MBPS	\$9,108	\$7,742	\$7,286	\$6,831	\$3,643			8%
41-100 MBPS	\$8,910	\$7,574	\$7,128	\$6,683	\$3,564			10%
101-200 MBPS	\$8,415	\$7,153	\$6,732	\$6,311	\$3,366			15%
201-300 MBPS	\$6,930	\$5,891	\$5,544	\$5,198	\$2,772			30%
300+ MBPS	\$4,950	\$4,208	\$3,960	\$3,713	\$1,980			50%

Priority IP

Product Description

An Ethernet-based, managed IP service that has mixed mode guarantees based on two distinct classes of service provided within a single physical connection (Access Link). The portion of the service defined as “Priority” mimics the characteristics of Ethernet and cannot be preempted by “normal” class traffic. The “normal” class or standard Internet portion of the traffic is subject to preemption by the “dedicated” (Ethernet) traffic on the local Access Link and is subject to oversubscription⁵ and contention once it enters the Internet Point of Presence (POP). This service is designed for Commercial and Institutional enterprises and is not meant for Internet resale to ISPs.

Priority Class Traffic Service Level

- Round trip latency not to exceed 70 milliseconds⁶
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP (Seattle?)
- Jitter not to exceed 20 milliseconds
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
 - Circuit Point A to Z
- Packet loss not to exceed .25%
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
 - Circuit Point A to Z
- Normal Class (Internet) Traffic Service Level
- Round trip latency not to exceed 100 milliseconds average⁷
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
- Jitter not to exceed 30 milliseconds average**
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP (Seattle)
- Packet loss not to exceed 1% average⁸
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP

⁵ Refer to Page 14 for details of oversubscription

⁶ Round trip delay will not exceed 700 milliseconds during times of satellite restoration.

⁷ Round trip delay will not exceed 700 milliseconds during times of satellite restoration.

⁸ Averaged over the period of one month

Supporting studies for Oversubscription

The Normal (Internet) Class traffic on Priority IPO is the portion of the Access Link designed to provide private connectivity into the Public Internet network. All traffic is subject to oversubscription and contention once it enters the Internet Point of Presence (POP). Service is intended to be for enterprise customers only and is not to be resold as public internet access. Usage patterns on this service generally peak during normal business hours and do not contribute greatly to the overall peak downstream bandwidth requirement for the POP thus the potential for oversubscription is high when mixed with consumer and wholesale Internet. Upstream bandwidth usage patterns are typically higher than those of standard internet but contribute mildly to the overall upstream requirement of the POP. All Class of Service or Quality of Service markings contained within the IP packets are ignored and or explicitly remarked to standard class.

A study of typical Normal Class (Internet) customers utilizing terrestrial facilities was conducted consisting of three (3) 1.5 Mbps, three (3) 3.0 Mbps, a 4.5 Mbps and two (2) 6.0 Mbps users to determine baseline oversubscription rates for Normal Class traffic on TERRA-SW.⁹

The following study results are shown in the eTrend Health Report on Page 15 and indicate normal peak utilization as a percentage of provisioned bandwidth. Note the raw value is expressed in Bytes per second vs. bits per second. The aggregate graph of bandwidth utilization IN/OUT (IN is from internet to customer) expressed as a percentage of total provisioned bandwidth for this week.

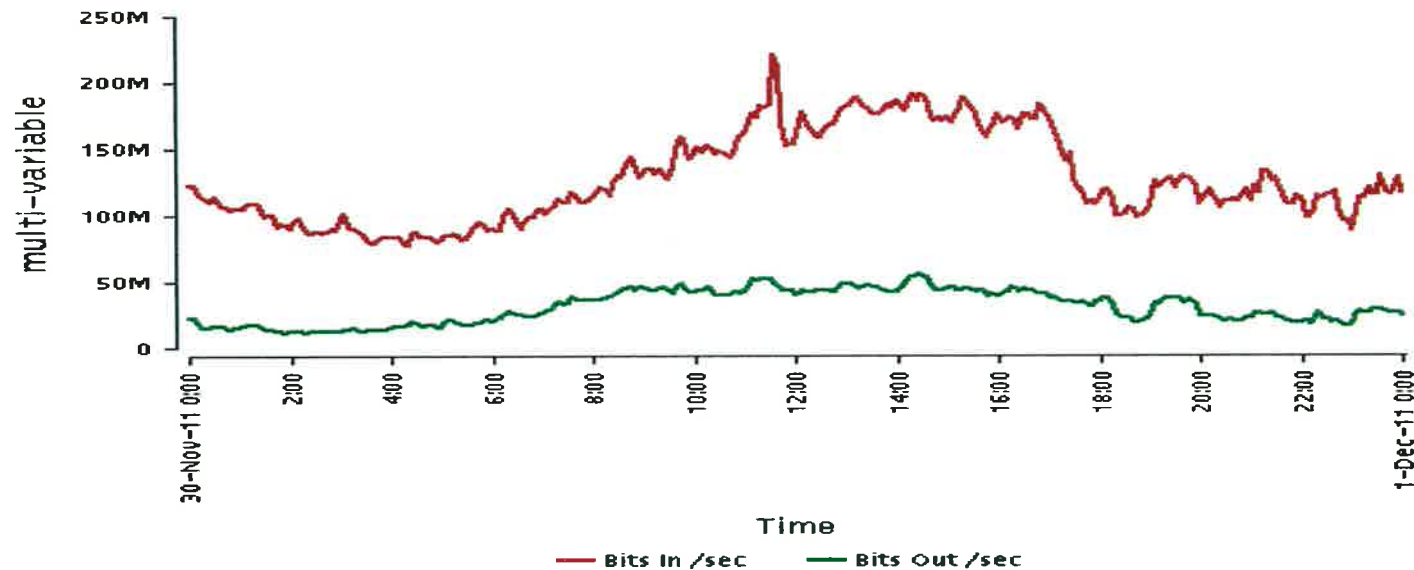
The following study results are shown in the eTrend Health Report on Page 16 and indicate normal peak utilization as a percentage of provisioned bandwidth. Note the raw value is expressed in Bytes per second vs. bits per second. The aggregate graph of bandwidth utilization IN/OUT (IN is from internet to customer) expressed as a percentage of total provisioned bandwidth for this week.

⁹ CsdAncMuffCpe-1, CsdAncAhiCpe-1, CsdFbkUrsCpe-1, CsdAncActionCpe-1, CsdAncOdomCpe-1, CsdAncEmeraldCpe-1, CsdAncKendalCpe-1, CsdCiriAncColoCpe-1, CsdJunMorrisCpe-1

eHealth Trend Report



Begin: 11/30/2011 00:00 **Created:** 12/02/2011 10:51:21
End: 12/01/2011 00:00
Time Zone: (GMT-09:00) Alaska



		Standard			Size of		Percentile			Number of
	Mean	Deviation	Maximum	Minimum	Range	Median	99th	95th	90th	Samples
Bits In/sec	127.21 M	33.52 M	220.97 M	77.68 M	143.29 M	117.12 M	190.92 M	183.57 M	177.86 M	288
Bits Out/sec	30.65 M	12.47 M	55.75 M	11.52 M	44.23 M	28.72 M	54.26 M	48.22 M	45.73 M	288

Note: K=1,000, M=1,000,000, etc.

1. Subject to TERRA-SW Ethernet capacity GCI shall provide to customer Priority IP service among TERRA-SW locations.
2. A Priority IP network shall consist of one hub port at a single location and Edge Port(s) at one or more different locations.
3. Aggregate Priority IP hub capacity and aggregate Priority IP edge capacity each must be ordered in increments of one MBPS, although the capacity may be provisioned in increments of less than one MBPS at individual location(s).
4. The aggregate Priority IP capacity of the hub port in a service network shall not exceed the aggregate Priority IP capacity of the edge ports in a service network.
5. Aggregate Normal (Internet) Class traffic may be ordered in specific increments as noted on the Normal (Internet Class) pricing table
6. One or more service networks may be ordered under a single contract or service order.
7. Discounts shall be specific to the amount of capacity/term of service set forth in a contract or service order (i.e. no aggregation across contracts or service orders).
8. Discounts shall be calculated by:
 - a. Totaling all the hub capacity ordered under a single contract or service order and the applying the hub discount table set out below.
 - b. Totaling all the edge capacity ordered under a single contract or service order and the applying the edge discount table set out below.
 - c. Adding the appropriate Normal (Internet) class price to the sum of the priority hub and edge pricing.
9. Minimum service term is one year.

Pricing Tables

PRIORITY CLASS HUB DISCOUNT TABLE

HUB CAPACITY/TERM	15%		20%
	1 YEAR	3 YEAR	5 YEAR
1-10 MBPS	\$1,100	\$935	\$880
11-20 MBPS	\$1,056	\$898	\$845
21-30 MBPS	\$1,034	\$879	\$827
31-40 MPBS	\$1,012	\$860	\$810
41-100 MBPS	\$990	\$842	\$792
101-200 MBPS	\$935	\$795	\$748
201-300 MBPS	\$770	\$655	\$616
300+ MBPS	\$550	\$468	\$440

PRIORITY CLASS EDGE DISCOUNT TABLE

EDGE CAPACITY/TERM	15%		20%
	1 YEAR	3 YEAR	5 YEAR
1-10 MBPS	\$9,900	\$8,415	\$7,920
11-20 MBPS	\$9,504	\$8,078	\$7,603
21-30 MBPS	\$9,306	\$7,910	\$7,445
31-40 MPBS	\$9,108	\$7,742	\$7,286
41-100 MBPS	\$8,910	\$7,574	\$7,128
101-200 MBPS	\$8,415	\$7,153	\$6,732
201-300 MBPS	\$6,930	\$5,891	\$5,544
300+ MBPS	\$4,950	\$4,208	\$3,960

NORMAL (INTERNET) CLASS PRICE TABLE

HUB CAPACITY/TERM	1 YEAR	3 YEAR	5 YEAR
1.5 MBPS	\$4,785	\$4,084	\$3,715
3.0 MBPS	\$9,420	\$8,048	\$7,105
5.0 MBPS	\$15,500	\$12,278	\$11,520
6.0 MBPS	\$18,360	\$14,506	\$13,600
8.0 MBPS	\$24,240	\$19,024	\$17,852
10.0 MBPS	\$30,000	\$23,471	\$22,020
20.0 MBPS	Pending	Pending	Pending

Pricing Examples

Total 4 MBPS Link between 2 points on TERRA-SW. 1 MBPS Priority Class, 3 MBPS Normal Class for a 3-Year term of service.

Service		Unit \$	Qty	Total
1.0 Mbps	Priority Class Hub Port	\$ 935	1	\$ 935
1.0 Mbps	Priority Class Edge Port	\$ 8,415	1	\$ 8,415
3.0 Mbps	Normal Class Service	\$ 8,048	1	\$ 8,048
				<u>\$ 17,398 *</u>

*Compares to \$37,400 for Dedicated Ethernet Service

Dedicated Internet Access Service – DIAS

Product Description

An Ethernet based IP service with dedicated Access Link designed to provide private connectivity into the Public Internet network. All traffic is subject to oversubscription and contention once it enters the Internet Point of Presence (POP). Service is intended to be for enterprise customers only and is not to be resold as public internet access. Usage patterns on this service generally peak during normal business hours and do not contribute greatly to the overall peak downstream bandwidth requirement for the POP thus the potential for oversubscription is high when mixed with consumer and wholesale Internet. Upstream bandwidth usage patterns are typically higher than those of standard internet but contribute mildly to the overall upstream requirement of the POP. All Class of Service or Quality of Service markings contained within the IP packets are ignored and or explicitly remarked to Normal class.

Normal Class (Internet) Traffic Service Level

- Round trip latency not to exceed 100 milliseconds average¹⁰
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
- Jitter not to exceed 30 milliseconds average¹¹
 - Measured using RFC 2544 standard tests
 - Measured GCI POP to GCI POP
- Packet loss not to exceed 1% average¹²
 - Measured using RFC 2544 standard tests

Measured GCI POP to GCI POP

Terms & Conditions

1. Subject to TERRA-SW Ethernet capacity GCI shall provide to customer Dedicated Internet Access Service (DIAS) service among TERRA-SW locations.
2. Dedicated Internet Access Service (DIAS) is offered on a point-to-point basis and shall consist of one link between two different locations.
3. Minimum service term is one year.

Pricing Tables

¹⁰ Round trip delay will not exceed 700 milliseconds during times of satellite restoration.

¹¹ Averaged over the period of one month

¹² Averaged over the period of one month

DEDICATED INTERNET ACCESS PRICE TABLE

HUB CAPACITY/TERM	1 YEAR	3 YEAR	5 YEAR
1.5 MBPS	\$4,785	\$4,084	\$3,715
3.0 MBPS	\$9,420	\$8,048	\$7,105
5.0 MBPS	\$15,500	\$12,278	\$11,520
6.0 MBPS	\$18,360	\$14,506	\$13,600
8.0 MBPS	\$24,240	\$19,024	\$17,852
10.0 MBPS	\$30,000	\$23,471	\$22,020
20.0 MBPS	Pending	Pending	Pending

Pricing Examples

6 MBPS Link between 2 points on TERRA-SW with a three year term.

Service		Unit \$	Qty	Total
6.0 Mbps	DIAS Service	\$ 14,506	1	\$ 14,506
				<u>\$ 14,506</u>

*

*Compares to \$28,025 for Dedicated Ethernet Service

Sample GCI Proposal Format



CONFIDENTIAL

January 10, 2012



Dear [REDACTED]

Thank you for your request for quote for bandwidth on the TERRA Southwest (TERRA-SW) network. Let me start with a brief overview of TERRA-SW and GCI's TERRA-SW product offering.

- TERRA-SW is a middle mile terrestrial broadband network connecting Anchorage with the 65 TERRA-SW communities (see attached list of TERRA-SW locations).
- An Ethernet network on TERRA-SW will consist of two or more ports at distinct locations. One port will be designated as the "hub port" and all other ports will be designated as "edge ports". TERRA-SW will accommodate oversubscription of the hub port (e.g., 2 Mbps of hub capacity with 10 Mbps of edge capacity).
- GCI's TERRA-SW rates are "postalized", i.e., the rates are set without reference to distance or a particular route's cost of service. The rates for Grayling, for example, are the same as the rates for Dillingham or Iliamna. The "rack rate" for Ethernet, T-1 and Fractional T-1 service is discounted on the basis of the total contract capacity and service term to which a customer commits.

REQUESTED SERVICES

Your December 23, 2011 request for quote asks for the following services:

- 12 Mbps Ethernet broadband data service between Bethel and 22 various village

[REDACTED]
January 10, 2012

locations on the TERRA SW network.

- 80 Mbps Ethernet broadband data service between [REDACTED] Bethel and Anchorage [REDACTED] points of presence.
- 1GigE Metro-Ethernet broadband data service between [REDACTED] Bethel point of presence and Bethel [REDACTED]
- All pricing requests are for a 3-year and 5-year terms of service.

AVAILABLE SERVICE SPECIFICATIONS

As requested, TERRA-SW Ethernet services are available at 3-year and 5-year terms.

- Service: Ethernet, Unprotected
- Facility: TERRA-SW (Terrestrial) Microwave System
- Service Type: Ethernet transport
- Termination A: [REDACTED] Bethel Point of Presence
- Termination B:
 - [REDACTED] Anchorage [REDACTED] Point of Presence
 - Various village locations
- Delivery: June 1, 2012

LEASE PRICING - Pricing does not include tail circuits to connect a TERRA-SW endpoint to the premises of a TERRA-SW carrier customer or the customer's end-user. Each TERRA-SW customer is responsible for arranging such tail circuits with local providers.

The enclosed pricing assumes that all requested services (designated in our response as Network 1 and Network 2) are purchased simultaneously on one contract or service order. If services are not ordered in this manner the enclosed pricing will not apply and we will be pleased to offer an alternative quote.

January 10, 2012

3 Year Lease Pricing: Monthly Recurring Charges

	Location	Mbps	Hub Port Price Per 1 Mbps	Hub Port Price	Edge Port Price Per 1 Mbps	Edge Port Price	Total MRC
Network 1	Bethel (Hub)	80 Mbps	\$795	\$63,600			\$63,600
	Villages (Edge)						
	Kwigillingok	12 Mbps			\$4,208	\$50,496	\$50,496
	Atmautluak #1	12 Mbps			\$4,208	\$50,496	\$50,496
	Atmautluak #2	12 Mbps			\$4,208	\$50,496	\$50,496
	Chefornak	12 Mbps			\$4,208	\$50,496	\$50,496
	Eek	12 Mbps			\$4,208	\$50,496	\$50,496
	Goodnews Bay	12 Mbps			\$4,208	\$50,496	\$50,496
	Kasigluk #1	12 Mbps			\$4,208	\$50,496	\$50,496
	Kasigluk #2	12 Mbps			\$4,208	\$50,496	\$50,496
	Kipnuk	12 Mbps			\$4,208	\$50,496	\$50,496
	Kongiganak	12 Mbps			\$4,208	\$50,496	\$50,496
	Kwethluk	12 Mbps			\$4,208	\$50,496	\$50,496
	Tununak	12 Mbps			\$4,208	\$50,496	\$50,496
	Mekoryuk	12 Mbps			\$4,208	\$50,496	\$50,496
	Napakiak	12 Mbps			\$4,208	\$50,496	\$50,496
	Napaskiak	12 Mbps			\$4,208	\$50,496	\$50,496
	Newtok	12 Mbps			\$4,208	\$50,496	\$50,496
	Nightmute	12 Mbps			\$4,208	\$50,496	\$50,496
	Oscarville	12 Mbps			\$4,208	\$50,496	\$50,496
	Platinum	12 Mbps			\$4,208	\$50,496	\$50,496
	Quinhagak	12 Mbps			\$4,208	\$50,496	\$50,496
	Toksook Bay	12 Mbps			\$4,208	\$50,496	\$50,496
	Tuntutuliak	12 Mbps			\$4,208	\$50,496	\$50,496
	Total	264/80 Mbps		\$63,600		\$1,110,912	\$1,174,512
Network 2	Bethel (Edge)	80 Mbps			\$4,208	\$336,640	\$336,640
	Anchorage (Hub)	80 Mbps	\$795	\$63,600			\$63,600
	Total	80/80 Mbps		\$63,600		\$336,640	\$400,240
Grand Total per Month, 3 –Year Term				\$127,200		\$1,447,552	\$1,574,752

January 10, 2012

5 Year Lease Pricing: Monthly Recurring Charges

	Location	Mbps	Hub Port Price Per 1 Mbps	Hub Port Price	Edge Port Price Per 1 Mbps	Edge Port Price	Total MRC
Network 1	Bethel (Hub)	80 Mbps	\$748	\$59,840			\$59,840
	Villages (Edge)						
	Kwigillingok	12 Mbps			\$3,960	\$47,520	\$47,520
	Atmautluak #1	12 Mbps			\$3,960	\$47,520	\$47,520
	Atmautluak #2	12 Mbps			\$3,960	\$47,520	\$47,520
	Chefornak	12 Mbps			\$3,960	\$47,520	\$47,520
	Eek	12 Mbps			\$3,960	\$47,520	\$47,520
	Goodnews Bay	12 Mbps			\$3,960	\$47,520	\$47,520
	Kasigluk #1	12 Mbps			\$3,960	\$47,520	\$47,520
	Kasigluk #2	12 Mbps			\$3,960	\$47,520	\$47,520
	Kipnuk	12 Mbps			\$3,960	\$47,520	\$47,520
	Kongiganak	12 Mbps			\$3,960	\$47,520	\$47,520
	Kwethluk	12 Mbps			\$3,960	\$47,520	\$47,520
	Tununak	12 Mbps			\$3,960	\$47,520	\$47,520
	Mekoryuk	12 Mbps			\$3,960	\$47,520	\$47,520
	Napakiak	12 Mbps			\$3,960	\$47,520	\$47,520
	Napaskiak	12 Mbps			\$3,960	\$47,520	\$47,520
	Newtok	12 Mbps			\$3,960	\$47,520	\$47,520
	Nightmute	12 Mbps			\$3,960	\$47,520	\$47,520
	Oscarville	12 Mbps			\$3,960	\$47,520	\$47,520
	Platinum	12 Mbps			\$3,960	\$47,520	\$47,520
	Quinhagak	12 Mbps			\$3,960	\$47,520	\$47,520
	Toksook Bay	12 Mbps			\$3,960	\$47,520	\$47,520
	Tuntutuliak	12 Mbps			\$3,960	\$47,520	\$47,520
	Total	264/80 Mbps				\$1,045,440	\$1,165,120
Network 2	Bethel (Edge)	80 Mbps			\$3,960	\$316,800	\$316,800
	Anchorage (Hub)	80 Mbps	\$748	\$59,840			\$59,840
	Total	80/80 Mbps		\$59,840		\$316,800	\$376,640
Grand Total per Month, 5 –Year Term				\$119,680		\$1,362,240	\$1,481,920

[REDACTED]
January 10, 2012

ADDITIONAL AVAILABLE SERVICE SPECIFICATIONS

Your request for local 1GigE Metro-Ethernet service in Bethel is available with a 3 or 5-year term.

- Service: Ethernet
- Facility: UUI Campus Ethernet Service, Bethel
- Service Type: Ethernet transport
- Termination A: [REDACTED] Bethel Point of Presence
- Termination B: Bethel [REDACTED] Office
- Delivery: June 1, 2012

Service	Term	Number of Ports	Price Per Port MRC	Price Per Port NRC	Total MRC	Total NRC
1GigE Ethernet, Bethel	3-Year	2	\$2,894.24	\$133.59	\$5,788.48	\$267.18
1GigE Ethernet, Bethel*	5-Year	2	\$2,733.45	\$133.59	\$5,466.90	\$267.18

This quote is confidential and valid for a period of 45 days unless accepted in writing by [REDACTED] or extended in writing by GCI. If accepted, services provided will be governed under a separate network services agreement between the parties. We appreciate your interest in these network services. Please do not hesitate to call me if you have any questions regarding this quotation.

Sincerely,

Mary DeVore
Director, Carrier Relations
907.868.8598
mdevore@gci.com

cc: Brad Spees, GCI Vice President, Network Access Services

Attachment

TERRA-SW SERVICE LOCATIONS

AKIAK	GRAYLING	MOUNTAIN VLG	RUSSIAN MISSION
AKIACHAK	HOLY CROSS	NAKNEK	SCAMMON BAY
ALAKANUK	HOOPER BAY	NAPAKIAK	SHAGELUK
ALEKNAGIK	IGIUGIG	NAPASKIAK	SOUTH NAKNEK
ANCHORAGE	ILLIAMNA	NEW STUYAHOK	ST. MARY'S
ANIAK	KASIGLUK	NEWHALEN	TOGIAK
ANVIK	KING SALMON	NEWTOK	TOKSOOK BAY
ATMAUTLUAK	KIPNUK	NIGHTMUTE	TULUKSAK
BETHEL	KOKHANOK	NONDALTON	TUNTUTULIAK
CHEFORNAK	KOLIGANEK	NUNAM IQUA	TUNUNAK
CHEVAK	KONGIGANAK	NUNAPATCHUK	TWIN HILLS
CHUATHBALUK	KWETHLUK	OSCARVILLE	UPPER KALSKAG
CLARK'S POINT	KWIGILLINGOK	PEDRO BAY	
DILLINGHAM	LEVELOCK	PILOT STATION	
EEK	LOWER KALSKAG	PITKAS POINT	
EKWOK	MANOKOTAK	PLATINUM	
EMMONAK	MARSHALL	PORT ALSWORTH	
GOODNEWS BAY	MEKORYUK	QUINHAGAK	

PUBLIC

GCI SUB RATE ETHERNET HUB DISCOUNT TABLE

HUB CAPACITY/TERM	FACTOR	1 YEAR	3 YEAR	5 YEAR
1 MBPS	100%	\$ 1,100	\$ 935	\$ 880
768 KBPS	75.0%	\$ 825	\$ 701	\$ 660
512 KBPS	50.0%	\$ 550	\$ 468	\$ 440
256 KBPS	25.0%	\$ 275	\$ 234	\$ 220
128 KBPS	12.5%	\$ 138	\$ 117	\$ 110
64 KBPS	6.3%	\$ 69	\$ 58	\$ 55

GCI SUB RATE ETHERNET EDGE DISCOUNT TABLE

EDGE CAPACITY/TERM	FACTOR	1 YEAR	3 YEAR	5 YEAR
1 MBPS	100.0%	\$ 9,900	\$ 8,415	\$ 7,920
768 KBPS	75.0%	\$ 7,425	\$ 6,311	\$ 5,940
512 KBPS	50.0%	\$ 4,950	\$ 4,208	\$ 3,960
256 KBPS	25.0%	\$ 2,475	\$ 2,104	\$ 1,980
128 KBPS	12.5%	\$ 1,238	\$ 1,052	\$ 990
64 KBPS	6.3%	\$ 619	\$ 526	\$ 495

GCI SUB RATE DIAS DISCOUNT TABLE

CAPACITY/TERM	FACTOR	1 YEAR	3 YEAR	5 YEAR
1.5 MBPS	100.0%	\$ 4,785	\$ 4,084	\$ 3,715
1 MBPS	66.7%	\$ 3,190	\$ 2,723	\$ 2,477
768 KBPS	50.0%	\$ 2,393	\$ 2,042	\$ 1,858
512 KBPS	33.3%	\$ 1,595	\$ 1,361	\$ 1,238
256 KBPS	16.7%	\$ 798	\$ 681	\$ 619
128 KBPS	8.3%	\$ 399	\$ 340	\$ 310
64 KBPS	4.2%	\$ 199	\$ 170	\$ 155



TERRA Product Descriptions & Pricing

NETWORK DESCRIPTION:

TERRA is a middle mile terrestrial interstate broadband network connecting Anchorage with the TERRA communities. GCI provides broadband transport services including IP/MPLS and/or Layer Two Ethernet over MPLS service over the TERRA network.

TERRA NETWORK LOCATIONS:

Customers may order service delivery at any of the following TERRA network locations.

AKIACHAK	GOODNEWS BAY	MARSHALL	PLATINUM
AKIAK	GRAYLING	MEKORYUK	PORT ALSWORTH
ALAKANUK	HOLY CROSS	MINTO	QUINHAGAK
ALEKNAGIK	HOOPER BAY	MOUNTAIN VILLAGE	RUBY
ANCHORAGE	IGIUGIG	NAKNEK	RUSSIAN MISSION
ANIAK	ILLIAMNA	NAPAKIAK	SCAMMON BAY
ANVIK	KASIGLUK	NAPASKIAK	SHAGELUK
ATMAUTLUAK	KING SALMON	NEW STUYAHOK	SHAKTOOLIK
BETHEL	KIPNUK	NEWHALEN	SOUTH NAKNEK
CHEFORNAK	KOKHANOK	NEWTOK	ST. MARY'S
CHEVAK	KOLIGANEK	NIGHTMUTE	TANANA
CHUATHBALUK	KONGIGANAK	NOME	TOGIAK
CLARKS POINT	KOTZEBUE	NONDALTON	TOKSOOK BAY
DILLINGHAM	KWETHLUK	NUNAM IQUA	TULUKSAK
EEK	KWIGILLINGOK	NUNAPITCHUK	TUNTUTULIAK
EKWOK	LEVELOCK	OSCARVILLE	TUNUNAK
EMMONAK	LOWER KALSKAG	PEDRO BAY	TWIN HILLS
GALENA	MANLEY	PILOT STATION	UNALAKLEET
	MANOKOTAK	PITKA'S POINT	UPPER KALSKAG

Additional locations may be added in the future and will be offered under the same terms and conditions and included in availability under existing service contracts, as the original locations.

The customer is responsible for transport from the TERRA network location premises to the customer premise.

**ETHERNET SERVICE:**

Ethernet Network Service Description: Customers have full symmetrical access to the configured capacity with availability of 99.95% or no greater than 1296 seconds of outage per month (the "Availability Standards"). Designed to provide point-to-point or point-to-multi-point connectivity, each Ethernet Network shall be comprised of one hub port at one location and one or more edge ports at different additional locations. Customers may order multiple networks, including multiple hub and edge port pairs for point-to-point service, or hub to multiple edge port combinations, within their overall volume commitment. Only one hub port may be ordered per network.

Ethernet Network Service is postalized; the price per port does not vary depending on route or distance. No additional usage charges apply.

SERVICE LEVEL:

- Round trip latency not to exceed 70 milliseconds¹
 - Measured using ITU-T Y.1564 standard tests
 - Measured TERRA POP to TERRA POP

TERMS & CONDITIONS FOR ETHERNET:

1. Subject to availability, GCI shall provide to the customer IP/MPLS services and/or Layer 2 Ethernet over MPLS service among TERRA locations.
2. An Ethernet service network shall consist of one hub port at a single location and Edge Port(s) at one or more different locations.
3. Aggregate Ethernet hub capacity and aggregate Ethernet edge capacity each must be ordered in increments of one Mbps, although the capacity may be provisioned in increments of less than one Mbps at individual location(s).
4. The aggregate Ethernet capacity of the hub port in a service network shall equal the aggregate Ethernet capacity of the edge ports in a service network.
5. One or more service networks may be ordered under a single contract.
6. During the service term and subject to any conditions in the contract, customer shall be entitled to change the allocation of the aggregate Ethernet hub and edge capacity (including the modification or elimination of existing Service Networks and the creation of new Service Networks) among TERRA Locations so long as such reallocation:
 - (a) Meets the requirements of paragraphs 2, 3, and 4 above.
 - (b) In the sole judgment of GCI, is technically feasible and commercially reasonable, taking into account, among other factors, TERRA's available capacity.

¹ The network is designed to limit round trip delay to not exceed 700 milliseconds during times of satellite restoration.



- (c) Does not have the effect of reducing the total Monthly Recurring Charges set forth in customer's service contract.
- 7. Additional capacity may be added during the term of the contract, subject to the requirements in paragraphs 2. 3. And 4. This incremental capacity must be maintained for the remaining duration of the contract term and shall not change the contracted capacity.
- 8. Termination penalties shall not apply if the customer replaces a current contract with a new contract having a service term greater than or equal to the remaining term of service under the current contract and having monthly charges under the new contract greater than or equal to the monthly charges under the current contract. If two or more current contracts are replaced with a single contract, the new contract must have a term of service greater than or equal to the longest remaining term of service in any of the contracts being replaced, and the monthly charges under the new contract must be greater than or equal to the aggregate monthly charges in all contracts being replaced.
- 9. Pricing shall be determined in accordance with the pricing table below as follows:
 - (a) Totaling all the hub capacity ordered in increments of IMB or greater under a single contract and applying the hub pricing table set out below. Ports less than IMB receive only term discounts and are not included in calculating capacity discounts.
 - (b) Totaling all the edge capacity ordered in increments of IMB or greater under a single contract and applying the edge pricing table set out below. Ports less than IMB receive only term discounts and are not included in calculating capacity discounts.
- 10. Service restoration
 - (a) In the event of an outage at a TERRA network location where a customer has ordered service, service is restored where possible via pre-designated satellite stations;
 - (b) Service may be reconfigured within the TERRA network as available to re-route traffic. Network reconfiguration for restoration purposes in the event of service outage is arranged on an individual case basis.



TERRA ETHERNET PRICING TABLE:

MONTHLY RECURRING CHARGES (MRC):

2015 TERRA Pricing

HUB PORT/EDGE PORT (MONTHLY RECURRING CHARGES PER 1 MBPS OF SERVICE)

Hub Port Component per 1Mbps

Mbps	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR
1-25 MBPS	\$900	\$800	\$700	\$600	\$400
26-50 MBPS	\$882	\$784	\$686	\$588	\$392
51-100 MBPS	\$864	\$768	\$672	\$576	\$384
101-150 MBPS	\$846	\$752	\$658	\$564	\$376
151-200 MBPS	\$810	\$720	\$630	\$540	\$360
201-250 MBPS	\$765	\$680	\$595	\$510	\$340
251-300 MBPS	\$675	\$600	\$525	\$450	\$300
301-400 MBPS	\$540	\$480	\$420	\$360	\$240
400+ MBPS	\$495	\$440	\$385	\$330	\$240

Edge Port Component per 1Mbps

Mbps	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR
1-25 MBPS	\$7,650	\$6,800	\$5,950	\$5,100	\$3,400
26-50 MBPS	\$7,497	\$6,664	\$5,831	\$4,998	\$3,332
51-100 MBPS	\$7,344	\$6,528	\$5,712	\$4,896	\$3,264
101-150 MBPS	\$7,191	\$6,392	\$5,593	\$4,794	\$3,196
151-200 MBPS	\$6,885	\$6,120	\$5,355	\$4,590	\$3,060
201-250 MBPS	\$6,503	\$5,780	\$5,058	\$4,335	\$2,890
251-300 MBPS	\$5,738	\$5,100	\$4,463	\$3,825	\$2,550
301-400 MBPS	\$4,590	\$4,080	\$3,570	\$3,060	\$2,040
400+ MBPS	\$4,208	\$3,740	\$3,273	\$2,805	\$2,040

Hub month-to-month pricing (per 1Mbps): \$1,000

Edge month-to-month pricing (per 1Mbps): \$8,500

In lieu of the standard capacity/term discount, Critical Community Facilities can elect to receive a 25% discount off the month-to-month rate.

Hub Port Component: Sub-1Mbps Rates

Mbps	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR
64 Kbps	\$56	\$50	\$44	\$38	\$25
128 Kbps	\$113	\$100	\$88	\$75	\$50
256 Kbps	\$225	\$200	\$175	\$150	\$100
512 Kbps	\$450	\$400	\$350	\$300	\$200
768 Kbps	\$675	\$600	\$525	\$450	\$300

Edge Port Component: Sub-1Mbps Rates

Mbps	1 YEAR	3 YEAR	5 YEAR	10 YEAR	25 YEAR
64 Kbps	\$478	\$425	\$372	\$319	\$213
128 Kbps	\$956	\$850	\$744	\$638	\$425
256 Kbps	\$1,913	\$1,700	\$1,488	\$1,275	\$850
512 Kbps	\$3,825	\$3,400	\$2,975	\$2,550	\$1,700
768 Kbps	\$5,738	\$5,100	\$4,463	\$3,825	\$2,550

NON-RECURRING CHARGES (NRC):

No fee shall be charged to initially provision service on TERRA. Subsequently, an NRC of \$95.00 (per hub or edge port) shall be charged for any Service Network change.

PORT EXTENSION CHARGES:

A Port Extension provides a connection between a TERRA Port and a customer's premises at the same TERRA location. See "Port Extensions" under Other Terms and Conditions for a full description.

Port Extension Capacity	NRC	MRC
1 to 10 Mbps	ICB	\$300 per Port Extension
11 to 20 Mbps	ICB	\$350 per Port Extension
21 to 30 Mbps	ICB	\$400 per Port Extension
31 to 40 Mbps	ICB	\$420 per Port Extension
41 to 100 Mbps	ICB	\$450 per Port Extension
Rate applies to an individual Port Extension.		
Mbps are measured at the specific port where the Port Extension is ordered, and not aggregated across multiple Port Extensions.		
Port Extensions are location-specific and may not be re-located.		

**TIME DIVISION MULTIPLEXING SERVICE:**

TDM Services may be available on an individual case basis.

OTHER TERMS AND CONDITIONS:

Other charges may be incurred for conditioning, modems, etc. The customer is responsible for paying actual charges determined at the time of installation. The customer is responsible for all applicable charges and surcharges imposed by other carriers for local connections.

PORT EXTENSIONS:

TERRA may provide a Port Extension on its facilities where available to a customer premises within the same local exchange area as the TERRA location where the customer has purchased a Port. Port Extensions include transport and termination equipment at the customer premises. Port Extension charges are in addition to the Port charge at the TERRA endpoint. Port Extension charges include non-recurring charges and monthly recurring charges. Port Extensions outside a local exchange area will be considered on an individual case basis and recurring and non-recurring charges may vary.

TERMINATION:

Following the expiration of the contract-specified service term, services will continue on a month-to-month basis until such time that GCI receives written notice of termination which shall be provided to GCI by the Customer no less than sixty (60) days prior to the requested termination date.

CREDIT:

A cash deposit or commercial letter of credit may be required based on a customer's financial qualifications and the combined value of all payments required under the Service Order.

LIQUIDATED DAMAGES:

Failure to honor the Capacity/Term Commitments will result in damages to GCI. Liquidated damages will be calculated in accordance with the following formula:

- (a) The stream of MRCs from the date that the customer fails to honor the Capacity/Term Commitments (the "Breach Date") through the date the Term ends shall be discounted to present value, using a discount rate of 10%.
- (b) Any payments owed by the customer prior to the Breach Date shall be added to the amount calculated above.
- (c) Any payments received from the customer after the Breach Date shall be subtracted from the amount calculated under this section.
- (d) The amount calculated under this section shall be the liquidated damages owed by customer to GCI.

LOCAL ACCESS CIRCUITS: Customer shall be responsible for arranging and paying for local telephone or other tail circuit facilities to connect the TERRA location POP to the premises of the customer.

TERRA Product Descriptions & Pricing

NETWORK DESCRIPTION:

TERRA is a middle mile terrestrial interstate broadband network connecting Anchorage with the TERRA communities. GCI provides broadband transport services including IP/MPLS and/or Layer Two Ethernet over MPLS service over the TERRA network.

TERRA NETWORK LOCATIONS:

Customers may order service delivery at any of the following TERRA network locations.

AKIACHAK	GOODNEWS BAY	MARSHALL	PORT ALSWORTH
AKIAK	GRAYLING	MEKORYUK	QUINHAGAK
ALAKANUK	HOLY CROSS	MINTO	RUBY
ALEKNAGIK	HOOPER BAY	MOUNTAIN VILLAGE	RUSSIAN MISSION
ANCHORAGE	IGIUGIG	NAKNEK	SCAMMON BAY
ANIAK	ILLIAMNA	NAPAKIAK	SELEWIK
ANVIK	KASIGLUK	NAPASKIAK	SHAGELUK
ATMAUTLUAK	KIANA	NEW STUYAHOK	SHAKTOOLIK
BETHEL	KING SALMON	NEWHALEN	SOUTH NAKNEK
BUCKLAND	KIPNUK	NEWTOK	ST. MARY'S
CHEFORNAK	KOKHANOK	NIGHTMUTE	ST. MICHAEL
CHEVAK	KOLIGANEK	NOME	STEBBINS
CHUATHBALUK	KONGIGANAK	NONDALTON	TANANA
CLARKS POINT	KOTZEBUE	NOORVIK	TOGIAK
DILLINGHAM	KOYUK	NUNAM IQUA	TOKSOOK BAY
EEK	KWETHLUK	NUNAPITCHUK	TULUKSAK
EKWOK	KWIGILLINGOK	OSCARVILLE	TUNTUTULIAK
ELIM	LEVELOCK	PEDRO BAY	TUNUNAK
EMMONAK	LOWER KALSKAG	PILOT STATION	TWIN HILLS
GALENA	MANLEY	PITKA'S POINT	UNALAKLEET
GOLOVIN	MANOKOTAK	PLATINUM	UPPER KALSKAG
			WHITE MOUNTAIN

Additional locations may be added in the future and will be offered under the same terms and conditions and included in availability under existing service contracts, as the original locations.

The customer is responsible for transport from the TERRA network location premises to the customer premise.

ETHERNET SERVICE:

Ethernet Network Service Description: Customers have full symmetrical access to the configured capacity with availability of 99.95% or no greater than 1296 seconds of outage per month (the "Availability Standards"). Ethernet Service is designed to provide point-to-point or point-to-multi-point connectivity. Customers may order multiple networks, including multiple hub and edge port pairs for point-to-point service, or hub to multiple edge port combinations, within their overall volume commitment. Only one hub port may be ordered per network.

Ethernet Network Service is postalized; the price per port does not vary depending on distance. No additional usage charges apply.

SERVICE LEVELS FOR ETHERNET SERVICE:

- Round trip latency not to exceed 50 milliseconds^{1,2}
- Packet loss not to exceed 0.1% averaged over 30 days²
- Jitter not to exceed 20 milliseconds on average over 30 days²

TERMS & CONDITIONS FOR ETHERNET SERVICE:

1. In addition to these Terms & Conditions, the provision of Ethernet Service is subject to a contract between GCI and customer.
2. Subject to availability, GCI shall provide to the customer IP/MPLS services and/or Layer 2 Ethernet over MPLS service among TERRA locations.
3. An Ethernet service network shall consist of one hub port at a single location and one or more Edge Port(s) at one or more different locations.
4. Aggregate Ethernet hub capacity and aggregate Ethernet edge capacity each must be ordered in increments of one Mbps, although the capacity may be provisioned in increments of less than one Mbps at individual location(s).
5. The aggregate Ethernet capacity of the hub port in a service network shall equal the aggregate Ethernet capacity of the edge ports in a service network.
6. One or more service networks may be ordered under a single contract.

¹ The network is designed to limit round trip delay to not exceed 700 milliseconds during times of satellite restoration.

² Averaged over the period of thirty days. measured using ITU-T Y.1731 standard tests from TERRA POP to TERRA POP



7. During the service term and subject to any applicable conditions in the customer's contract, customer shall be entitled to change the allocation of the aggregate Ethernet Service hub and edge capacity (including the modification or elimination of existing Service Networks and the creation of new Service Networks) among TERRA Locations so long as such reallocation:
 - (a) Meets the requirements of paragraphs 3, 4, and 5 above.
 - (b) In the sole judgment and discretion of GCI, is technically feasible and commercially reasonable, taking into account, among other factors, TERRA's available capacity.
 - (c) Does not have the effect of reducing the total Monthly Recurring Charges set forth in customer's service contract.
8. Additional capacity may be added during the term of the contract, subject to the requirements in paragraphs 3, 4 and 5. This additional capacity must be maintained for the remaining duration of the contract term and shall not change the contracted capacity.
9. Termination penalties pursuant to a contract shall not apply if the customer replaces a current contract with a new contract that has a service term greater than or equal to the remaining term of service under the current contract, and having monthly charges under the new contract greater than or equal to the monthly charges under the current contract. If two or more current contracts are replaced with a single contract, the new contract must have a term of service greater than or equal to the longest remaining term of service in any of the contracts being replaced, and the monthly charges under the new contract must be greater than or equal to the aggregate monthly charges in all contracts being replaced.
10. Pricing shall be determined in accordance with the pricing tables below as follows:
 - (a) Totaling all of the hub capacity in Tables 1 and 2 ordered in increments of 1 Mbps or greater under a single contract and applying the hub pricing rate in each Table based on the aggregate commitment. Ports less than 1 Mbps receive only term discounts and are not included in calculating capacity discounts.
 - (b) Totaling all of the edge capacity in Tables 1 and 2 ordered in increments of 1 Mbps or greater under a single contract and applying the edge pricing rate in each Table based on the aggregate commitment. Ports less than 1 Mbps receive only term discounts and are not included in calculating capacity discounts.
11. Service restoration
 - (a) In the event of an outage at a TERRA network location where a customer has ordered service, service will be restored where possible via pre-designated satellite stations;
 - (b) Service may be reconfigured within the TERRA network as available to re-route traffic. Network reconfiguration for restoration purposes in the event of service outage will be arranged on an individual case basis.

TERRA ETHERNET PRICING TABLES:

MONTHLY RECURRING CHARGES (MRCs):

HUB PORT/EDGE PORT (MONTHLY RECURRING CHARGES PER 1 MBPS OF SERVICE)

**TABLE 1 -
TERRA SERVICES BETWEEN ANCHORAGE AND A REGIONAL CENTER (BETHEL, DILLINGHAM, KOTZEBUE, KING SALMON & NOME)**

Aggregate Capacity	Hub Port Component per 1 Mbps					Edge Port Component per 1 Mbps				
	1 Year	3 Year	5 Year	10 Year	25 Year	1 Year	3 Year	5 Year	10 Year	25 Year
1-100 Mbps	\$778	\$691	\$605	\$518	\$346	\$6,610	\$5,875	\$5,141	\$4,406	\$2,938
101-150 Mbps	\$761	\$677	\$592	\$508	\$338	\$6,472	\$5,753	\$5,034	\$4,315	\$2,876
151-200 Mbps	\$729	\$648	\$567	\$486	\$324	\$6,197	\$5,508	\$4,820	\$4,131	\$2,754
201-250 Mbps	\$689	\$612	\$536	\$459	\$306	\$5,853	\$5,202	\$4,552	\$3,902	\$2,601
251-300 Mbps	\$608	\$540	\$473	\$405	\$270	\$5,164	\$4,590	\$4,017	\$3,443	\$2,295
301-400 Mbps	\$486	\$432	\$378	\$324	\$216	\$4,131	\$3,672	\$3,213	\$2,754	\$1,836
400+ Mbps	\$446	\$396	\$347	\$297	\$216	\$3,787	\$3,366	\$2,946	\$2,525	\$1,836

Hub month-to-month pricing (per 1 Mbps) \$864

Edge port month-to-month pricing (per 1 Mbps) \$7,344

**TABLE 2 -
TERRA SERVICES BETWEEN ALL TERRA SERVICE LOCATIONS OTHER THAN THOSE DESCRIBED IN TABLE 1**

Aggregate Capacity	Hub Port Component per 1 Mbps					Edge Port Component per 1 Mbps				
	1 Year	3 Year	5 Year	10 Year	25 Year	1 Year	3 Year	5 Year	10 Year	25 Year
1-100 Mbps	\$864	\$768	\$672	\$576	\$384	\$7,344	\$6,528	\$5,712	\$4,896	\$3,264
101-150 Mbps	\$846	\$752	\$658	\$564	\$376	\$7,191	\$6,392	\$5,593	\$4,794	\$3,196
151-200 Mbps	\$810	\$720	\$630	\$540	\$360	\$6,885	\$6,120	\$5,355	\$4,590	\$3,060
201-250 Mbps	\$765	\$680	\$595	\$510	\$340	\$6,503	\$5,780	\$5,058	\$4,335	\$2,890
251-300 Mbps	\$675	\$600	\$525	\$450	\$300	\$5,738	\$5,100	\$4,463	\$3,825	\$2,550
301-400 Mbps	\$540	\$480	\$420	\$360	\$240	\$4,590	\$4,080	\$3,570	\$3,060	\$2,040
400+ Mbps	\$495	\$440	\$385	\$330	\$240	\$4,208	\$3,740	\$3,273	\$2,805	\$2,040

Hub month-to-month pricing (per 1 Mbps) \$960

Edge port month-to-month pricing (per 1 Mbps) \$8,160

CRITICAL COMMUNITY FACILITIES MINIMUM DISCOUNT:

For the purposes of TERRA pricing, Critical Community Facilities (“CCF”) are public facilities that provide community services essential for supporting the safety, health and well being of residents. CCFs include, but are not limited to, emergency response, public safety, hospitals, health clinics, libraries and schools. In lieu of the standard term and volume discounts available in Table 1 and Table 2 above, CCFs may elect to receive a 25% discount off the TERRA published month-to-month rates.

NON-RECURRING CHARGES (NRC):

No fee shall be charged to initially provision service on TERRA. Subsequently, an NRC of \$95.00 (per location) shall be charged for any Service Network change.

PORT EXTENSION CHARGES:

A Port Extension provides a connection between a TERRA Port and a customer's premises at the same TERRA location. See "Port Extensions" under Other Terms and Conditions for a full description.

Port Extension Capacity	NRC	MRC
1 to 10 Mbps	ICB	\$300 per Port Extension
11 to 20 Mbps	ICB	\$350 per Port Extension
21 to 30 Mbps	ICB	\$400 per Port Extension
31 to 40 Mbps	ICB	\$420 per Port Extension
41 to 100 Mbps	ICB	\$450 per Port Extension
Rate applies to an individual Port Extension.		
Mbps are measured at the specific port where the Port Extension is ordered, and not aggregated across multiple Port Extensions.		
Port Extensions are location-specific and may not be re-located.		

OTHER TERMS AND CONDITIONS:

Other charges may be incurred for conditioning, modems, etc. The customer is responsible for paying actual charges determined at the time of installation. The customer is responsible for all applicable charges and surcharges imposed by other carriers for local connections.

PORT EXTENSIONS:

TERRA may provide a Port Extension on its facilities where available to a customer premises within the same local exchange area as the TERRA location where the customer has purchased a Port. Port Extensions include transport and termination equipment at the customer premises. Port Extension charges are in addition to the Port charge at the TERRA endpoint, and include non-recurring charges and monthly recurring charges. Port Extensions outside a local exchange area will be considered on an individual case basis and recurring and non-recurring charges may vary.

TERMINATION:

Following the expiration of the contract-specified service term, services will continue on a month-to-month basis until such time that GCI receives written notice of termination, which shall be provided to GCI by the customer no less than sixty (60) days prior to the requested termination date.

CREDIT:

A cash deposit or commercial letter of credit may be required based on a customer's financial qualifications and the combined value of all payments required under the Service Order.

LIQUIDATED DAMAGES:

Failure to honor the Capacity/Term Commitments will result in damages to GCI. Liquidated damages will be calculated in accordance with the following formula:



- (a) The stream of MRCs from the date that the customer fails to honor the Capacity/Term Commitments (the "Breach Date") through the date the Term ends shall be discounted to present value, using a discount rate of 10%.
- (b) Any payments owed by the customer prior to the Breach Date shall be added to the amount calculated above.
- (c) Any payments received from the customer after the Breach Date shall be subtracted from the amount calculated under this section.
- (d) The amount calculated under this section shall be the liquidated damages owed by customer to GCI.

LOCAL ACCESS CIRCUITS:

Customer shall be responsible for arranging and paying for local telephone or other tail circuit facilities to connect the TERRA location POP to the premises of the customer.

Tariff Channel Termination Rates Redacted in Entirety

REDACTED - FOR PUBLIC INSPECTION

October 6, 2015

Via Email

Deborah Gilliland
Alban Rushiti
Porschia Smith
Staff Internal Auditors
Universal Service Administrative Company
2000 L Street, NW, Suite 200
Washington, DC 20036

Re: Response of GCI Communication Corp. to Rural Health Care Audit Letters
Dated August 21, 2015

Dear Ms. Gilliland, Mr. Rushiti, and Ms. Smith,

GCI Communication Corp. ("GCI") hereby responds to the letters dated August 21, 2015, regarding the following Rural Health Care ("RHC") beneficiaries for which GCI was contracted as the service provider:

■ [REDACTED]
■ [REDACTED]
■ [REDACTED]
■ [REDACTED]
■ [REDACTED]
■ [REDACTED]

As USAC is aware, GCI provides symmetric broadband telecommunications services to medical facilities throughout Alaska over GCI's microwave network, TERRA, and via satellite systems. Service speed is designated on a per-location basis and ranges from 1.5 to 3 to 5 megabits per second ("Mbps") and higher.

As you point out, 47 C.F.R. § 54.607 states, in part, as follows:

(a) The rural rate shall be the average of the rates actually being charged to commercial customers, other than health care providers, for identical or similar services provided by the telecommunications carrier providing the service in the rural area in which the health care provider is located. . . (b) If the telecommunications carrier serving the health care provider is not providing any identical or similar services in the rural area, then the rural rate shall be the average of the tariffed and other publicly available rates, not including any rates reduced by universal service programs, charged for the same or similar services in that rural area over the same distance as the eligible service by other carriers. . . .

There are few commercial customers in rural Alaska for high bandwidth services that are not rural health care providers with an RHC subsidy or school districts under E-rate support. Nonetheless, available comparisons show that the rates charged to the above-referenced entities meet the requirements of 54.607(a). Moreover, the information you requested regarding the Emmonak Clinic is from the same contract that was the subject of an extensive pre-commitment USAC review that specifically examined pricing for the same service, after which USAC issued the Funding Commitment Letter ("FCL"). Accordingly, the Emmonak rates have already been reviewed and approved by USAC.

I. Emmonak Clinic (TERRA)

The [REDACTED] main medical facilities in [REDACTED] are connected with [REDACTED]. Many of these clinics are in extremely isolated areas, and [REDACTED] medical professionals (typically village-resident Community Health Aides) must rely on telemedicine because they cannot provide advanced medical services in person.

The [REDACTED] contract that includes services to the [REDACTED] was the subject of a 2009-2010 USAC pre-commitment review that concluded with a June 24, 2010, FCL for the listed prices. The FCL and the supporting letters from GCI are attached hereto as Exhibit A. In particular, the [REDACTED] is health care provider ("HCP") [REDACTED] for which the FCL approved a circuit charge of [REDACTED].

At the time of the above-described review, and through 2011, GCI provided service to the [REDACTED] under contract [REDACTED]. When the contract term of [REDACTED] expired in 2011, GCI and [REDACTED]. The pricing under [REDACTED] was identical to the pricing in [REDACTED] which was approved by the June 24, 2010 FCL. Later in 2011, GCI completed the TERRA Southwest middle mile network that built 400 miles of new fiber optic cable and 13 new microwave towers to connect 65 communities in Southwest Alaska. GCI transitioned the [REDACTED] to the TERRA network and reduced the pricing from the previously-approved [REDACTED] circuit charge to a circuit charge of [REDACTED].

USAC reviewed and approved the circuit charges under the [REDACTED] contract, which was supplanted by the [REDACTED] contract which had identical, and then lower, rates to those approved by USAC for the exact same services. This included USAC review of information GCI presented regarding a contract for a comparable service that was purchased by [REDACTED].¹ Therefore, there should be no question that the rates in [REDACTED] are proper under 54.607(a). Further, the rates in [REDACTED] are also proper under 54.607(b), which allows the use of rural rates that have been

¹ Letter from Martin Cary, GCI Communication Corp. to Rekha Ayalur, USAC, Dec. 23, 2009; Letter from Martin Cary, GCI Communication Corp. to William England, Ph.D., USAC, Mar, 4, 2010; Letter from USAC to David Hodges, [REDACTED], June 24, 2010.

approved by a state commission or the Federal Communications Commission (“FCC”).² Since USAC approved the rates in [REDACTED] in 2010, GCI’s continued use of such rates in FY2011 complies with this requirement.

II. Kiana Clinic, King Cove Clinic, Samuel Simmonds Hospital (Satellite)

For areas that are not on the TERRA network, GCI offers intercommunity transmission via satellite. During the periods subject to the audit, GCI used satellite to provide transmission to the [REDACTED]

The FCC has made clear that the rural rate is determined by “compar[ing] the urban and rural rates for functionally similar services as viewed from the perspective of the end user.”³ To facilitate this comparison, the FCC created “‘safe harbor’ categories of functionally equivalent services based on the advertised speed and nature of the service.”⁴ One of those categories is T-1 – 1.41-8 Mbps. The services that GCI is providing to these medical facilities all fall within this range.

**** BEGIN CONFIDENTIAL ****

[REDACTED]

² 47 C.F.R. § 54.607(b) (“If there are no tariffed or publicly available rates for such services in that rural area, or if the carrier reasonably determines that this method for calculating the rural rate is unfair, then the carrier shall submit for the state commission’s approval, for intrastate rates, or the Commission’s approval, for interstate rates, a cost-based rate for the provision of the service in the most economically efficient, reasonably available manner.”).

³ *Rural Health Care Support Mechanism*, Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, 18 FCC Rcd. 24,546, 24,563 ¶ 33 (2003).

⁴ *Id.* at 24,564 ¶ 34.

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(Bass)

Jennifer P. Bagg
Counsel to GCI Communication Corp.

**2015 USAC Audit Letter Exhibit A: 2010 USAC Funding Commitment Letters
Redacted in Entirety**

2015 USAC Audit Letter Exhibit B: Breakdown of Rural Rates
Redacted in Entirety